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COMING

What about the remnants of the once great American wilderness? Should these scattered wild areas, as yet untamed by the road-builders, be kept in their primitive state? Or should they be opened up to the automobile? In the March issue Norman B. Livermore, Jr., who is as much at home in the wilds as he is in civilized places, looks at the subject as it pertains to California and draws some interesting conclusions.

The Paul Bunyans of India are the elephants, and in March, C. Claude Wilson, in a fascinating story, tells how these mighty loggers are captured and trained.

Another unusual and enlightening story will deal with public and private forestry in England. The author is Philip W. Ayres, who needs no introduction, having served the forestry movement in America for a good many years.

There will also be Stewart H. Holbrook, C. E. Ostrom and others. "Why Wood is Beautiful," by George Lamb, scheduled to appear in March, has been held over for April.

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AMERICAN FORESTS

READERS' FORUM

A BEAR FIGHT

SIR: In going through some old newspapers not long ago I ran into the following item which I thought was quite a yarn and worth reprinting:

"A short time ago a laboring hand at the saw mills on the St. Croix river borrowed a shot gun to shoot birds; on his return he fell in with a huge bear, at which he discharged his fowling piece. The only effect was to irritate and enrage the bear, and he rushed on the assailant, who broke the gun in pieces over his head, and then succeeded in getting a club, which the bear seized in his teeth and took from him, and then attempted to escape. The hunter then gathered the pieces of his borrowed gun, and being enraged at its being broken, got another club, and made a second assault upon the bear and finally succeeded in beating him to death. He sold his skin for six dollars and his meat for four dollars. He paid six dollars for the broken gun, and had four dollars for his labor and risk."—*St. Louis New Era,* July 11, 1845. —*Philip R. Hough,* Washington's Birthplace, Virginia.

CALLING ALL OAKS!

SIR: Do you know of any oak tree or trees that have made a thrifty growth, have a straight and continuous trunk, and have borne heavy crops of acorns in the past? The acorns should be relatively sweet, despite the bitter taste that more or less hides this fact. The white and chestnut oak types bear the sweetest acorns. We want to find such oaks, and prefer that they have a record of bearing acorns every year.

Send a sample of acorns and tell about your trees. From the best tree reported, a limited quantity of grafting wood, and possibly acorns for seed, will be bought and used in a tree breeding and improvement program. The object is to obtain the best trees to begin with, and then develop better and faster growing oaks, in respect to wood and timber, that will also each year yield acorns to feed hogs and other stock or wild game.—*Forestation Experiment Unit, Department of Forestry Relations, Tennessee Valley Authority,* Norris, Tenn.

NATIONAL PARKS AND COMMERCIALISM

SIR: It is my opinion that it might be possible for you to present to the proper authorities the demand that the boundaries of the Rocky Mountain National Park (in Colorado) be rearranged so as to exclude the commercial proposal known as the Colorado-Big Thompson Reclamation Project, and thereby protect the integrity of the National Park policy. At the same time awaken the nation to the fact that there is not to be any such infringements upon the National Parks; immediately any area is commercialized it is to be excluded from National Park boundaries.

This step obviates this unwanted precedent that has now been established. —*C. W. Myers,* Bowling Green, Ohio.

WOOD FOR THE NINETY YEAR CYCLE

SIR: Professor Edwin L. Moseley, curator of the museum at Bowling Green State University, Ohio, has examined the annual rings on large logs in many mill yards, and on hundreds of stumps. He finds on many of them single rings, or groups of rings, which are outstanding for their width, indicating that the trees were getting more moisture at the time these rings of wood were formed.

One such period began in 1846, another ninety years earlier, 1756. At several places in Ohio precipitation records were made as early as 1846; they show heavy rainfall, 1846-1852. The same is true of one or more places in Kentucky, Wisconsin, Iowa, Missouri, Kansas, Texas, Louisiana, and Mississippi. At Cincinnati, in 1847, was the greatest rainfall in the entire record of over a hundred years, sixty-five inches. This was ninety years prior to the present wet year. In the seven years beginning with 1846 there were six floods recorded at Pittsburgh, which is as many as the record shows for more than half a century prior to that. All of the eight floods recorded there, 1762-1840, were followed by floods approximately ninety years later.

The reason for the ninety year precipitation cycle is believed to be the sun's influence on climate. Ninety is a simple multiple of the sun-spot period. Moseley finds evidence of it not only in tree rings, river floods, and precipitation records but also in Great Lake levels.

In order that he may continue this study and have tangible evidence that will convince other scientists, the university would like to obtain sections from large logs or stumps of any species if they show plainly as many as 300 rings. The section may go entirely across or only to the center. It need be only thick enough to hold together. In squaring the butt end of a log enough could be saved without lessening the number of board feet it will make.

Specimens should be marked "Sample, Collect," and sent by express to the University Museum, Bowling Green, Ohio.—*W. R. Burt,* Washington, D. C.

OUR PRESIDENTS

GEORGE B. LORING
Second President of The American Forestry Association, 1882-1884

■ In 1882, Judge Warren Higley, an eminent jurist of Cincinnati, became interested in forestry as a result of a visit to Cincinnati in 1881 of Richard Baron Von Steuben, an *Oberforster* in the Prussian Forestry Service. Judge Higley took leadership in organizing a national forestry meeting for the purpose of arousing the American public to the need of forestry in this country. He enlisted the interest and help of a number of other public spirited men, among them Dr. John A. Warder, President of The American Forestry Association, which had been organized seven years previously in Chicago.

This meeting, held in Cincinnati the week of April 25, 1882, proved a great success and launched the real beginning of the forestry movement in the United States on a national scale. It formed a permanent national organization known as The American Forestry Congress with which the young American Forestry Association united and became a part in order to form "one society for the prosecution of the objects common to both." The meeting was attended by distinguished men from all sections of the United States and Canada. It was presided over by Dr. George Bailey Loring, of Salem, Massachusetts.

Dr. Loring was elected president of the permanent organization which continued under the name of The American Forestry Congress until 1889, when the name was changed back to The American Forestry Association. Born in North Andover, Massachusetts, November 8, 1817, Dr. Loring was graduated from Harvard in 1838. He studied medicine with Dr. Oliver Wendell Holmes at the Harvard Medical School. After serving as surgeon of the United States Marine Hospital at Chelsea, Massachusetts, in 1843, he was appointed a commissioner to revise the United States Marine hospital system in 1849. He later moved to Salem, devoting himself to literary pursuits and to practical and scientific agriculture, founding the New England Agricultural Society in 1864. Edward Everett Hale comments interestingly on Dr. Loring's close friendship with James Russell Lowell, dating from their school days at Harvard.

Dr. Loring was active in public life in Massachusetts and was elected to Congress in 1876, serving until 1881, when he became United States Commissioner of Agriculture, holding office until 1885. His death occurred in Salem, Massachusetts, on September 13, 1891.

THE EDITOR'S LOG

Michigan has the distinction of being the first state to inaugurate a special deer hunting season for long bowmen. As an experiment the Conservation Department of the State last fall set apart a period in two counties immediately preceding the opening of the regular hunting season and declared them legal for sportsmen—and others—to hunt deer with bows and arrows. During this open season for Robin Hoods, many archers stalked the woods and many arrows zinged the air. When the score was finally counted, Michigan deer herds were minus three deer. The record fails to record fatalities among the bowmen.

* * * * *

"National Parks—Lost or Stolen" might better have been the title of James Foote's article in the current bulletin of the National Parks Association if all that he says is true. The picture of conditions painted within the National Park Service portends a major conservation tragedy. If only half true, the article makes it in order to suggest that Secretary Ickes take time out from his quixotic mission of saving all conservation and forthwith save his own particular charge—the National Parks.

* * * * *

Across the editor's desk has passed a letter in which the writer questions the motives of The American Forestry Association in its opposition to transferring forestry and wildlife conservation from the Department of Agriculture. He says: "I cannot help but believe that political and personal consideration form entirely too much the groundwork of their opposition to the proposed Conservation Department."

To which the editor in effect replied: "The quickest way to disabuse your mind on this score is to enclose you a copy of the resolution defining the position of the Association in respect to the grouping of the conservation activities of the government. This resolution was passed by the Board in February 1932 and was called forth by President Hoover's (not President Roosevelt's) reorganization proposal to transfer forestry out of Agriculture. The Association took its stand then, and it is standing now on that same resolution of principle which held that the conservation of plant and animal life, whether domestic or wild, and the protection and conservation of soils and waters relating to agriculture, grazing and forestry, should be handled through a common administrative agency in the Department of Agriculture."

* * * * *

Comment was made in this column several months ago when Congress voted money to invade Rocky Mountain National Park for an irrigation and hydro-electric power development that once the camel of commercialism is let into the National Parks it breeds rapidly. True to that prediction, Yellowstone National Park now has expectations. It is reported that groups in Idaho and Montana who have long had wishful eyes on Yellowstone waters have laid before a regional committee of the National Resources Committee of the government a proposal that plans be prepared for the commercial utilization of the waters of Yellowstone Lake, situated in Yellowstone National Park. If this lying-in case is handled by "Dr. Ickes" as he handled Rocky Mountain, prospects are that another camel may be born in the National Park family before many Congressional moons pass.

Ona Butler

Editor.

Photo by John D. Cress, Seattle

"Get out the logs or get out of the business" is the inexorable rule of the lumber woods. Or as the Swedes say, "No logs, no snooze"

CONSERVATION IN CALKED BOOTS

By JAMES STEVENS

SIXTY-ODD logging superintendents, camp foremen, wardens and straw bosses of southwestern Washington gathered at the Capital Forest Nursery early last June to confer and decide on forest conservation measures for the coming season. This was one of several meetings called by the Joint Committee on Forest Conservation of the West Coast Lumbermen's and Pacific Northwest Loggers' Associations. It was my good luck to be invited to go to the meeting. There, for the first time in my thirty-one years of big-timber experience, I saw loggers assembled and at work as conservationists.

The Capital Forest Nursery is the pride of Washington's State Forestry Department. It is near the mill town of Bordeaux, fourteen miles west of Olympia. The drive from the state capital provides a panoramic picture of logging, natural reforestation, fire devastation, the economic dependence of people upon lumbering, and of the creative practices of forestry.

The Bordeaux mill is an old operation. Most of the valley is green with reproduction, on land that was logged when Dewey took Manila. But there are sections on which black stumps and snags stand like candles on the altar of desolation.

Again, the horizon sweeps up a clean-logged mountainside to a ridge so tufted with trees that it makes one think of the pompadoured head of Paul Bunyan. The pompadour is a seed island, left by a new-style logger. Bordeaux is a prime example of a one-industry community. Every family there, like tens of thousands of other forest-sustained families in western Washington and Oregon, is today conscious of the economic need for making little trees grow where big trees have been logged away.

The nursery is cradled in a small valley fringed with young trees. In ten acres of beds, fir, spruce and cedar seedlings, under canopies of sprinkler pipes, are like rows of parsley in a truck garden.

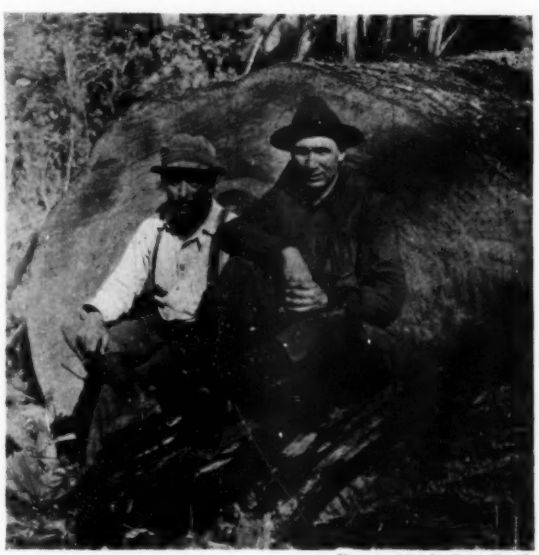
On the day of the meeting the sun shone, small clouds skimmed across the sky like tufts of cotton over a scrubbed blue bowl, and the air was alive with smells of timber and spring earth.

The cars of the "bulls of the woods" rolled into the grounds, some of them having traveled a hundred miles since dawn. The prime weather evoked a carnival mood. The loggers, led by State Forester Ted Goodyear, and L. T. Webster, toured the nursery, from the cone and threshing house to the beds of seedlings, with the exuberance of visiting firemen. At Forester "Bush" Osborne's lecture on fire protection and demonstration of apparatus and tools, the woods bosses went into action. They took turns at manning the portable pumps and hose lines, at trying out the Osborne gadgets, and even at digging up roots with Warren Tilton's "hodag," the latest thing out in fire-fighting tools. So far it was a field day. Then, gathering indoors, the loggers got down to business, with George L. Drake, manager of the Simpson Logging Company, swinging the chairman's gavel.

On the sidelines with the foresters of public agencies and the industry, I sat back and asked myself questions about what this meeting, something new under the sun to me, signified. What was its relation to the forestry conference of two months before in Washington? What was its economic significance to people like those who lived back there in the cottages at Bordeaux? What did it represent, in terms of the progress of our civilization?

Each of the sixty and more men on the benches was in charge of thousands of acres of forest land, and of the forest practices of from fifty to five hundred men. They were here at a call from the forest conservation department of their organized industry. They could attend as a matter of form, pass on the subjects brought up so as to clear the record, and then go back to the woods and their work and do no more than was needed to "get by" the wardens. Or they could stand up in meeting and tackle conservation problems just as they tackled the problems of getting out the logs, and then go home with the resolve to produce new timber crops on their cutovers.

While waiting for the evidence that would yield an answer, I thought of the complex background of this seemingly simple and natural meeting of foresters and heads of log production. It had taken years upon years of heavy going through slide rock and down timber to bring the woodsmen in green choke-bore pants and the woodsmen in stagged britches together on



Typical top-limb loggers of the Pacific Northwest

Photo by John D. Cress, Seattle

Photo by John D. Cress, Seattle

Seventy-five per cent of reforestation, the man in calked boots will tell you, is keeping fires out, and to prove it he will cite scenes like this in western Washington, where fire has been kept out for twenty years

a common ground in a cooperative conservation program.

There were, for example, the all-too-human prejudices that had to be surmounted. It is certainly no secret, open or otherwise, that loggers and foresters have not exactly been pals in the past. At the top, the logging operator saw the forester as the representative of a movement that threatened his business with ruinous regulations. Working loggers, rightly or wrongly, commonly saw the forester as a "gent" who used his college education and the authority he packed to swell his personal importance. Press agentry glorified the forest ranger into a romantic hero. Fictioneers presented him as a brave, handsome lad whose role it was to withstand predatory timber barons and their traditional gangs of hairy backwoods loggers. Even today a "forester" is highly acceptable to socialites, while "logger" remains an ugly word in the best circles.

This may seem a petty point to dwell upon. Yet, loggers are people, and generally are literate. They read, they attend movies, and the shaggiest ears among them enjoy the benefits of radio. Tradition still rules the characterization of woods people in the popular arts. More, because he is a government hand and not a man who has to get out the logs and "make 'er pay," the CCC boy has been built up to heroic size by the fiction-writers—which include publicity men, of course —and the press, while the logger, at best, is a quaint character in the public eye.

Here's an example of how it works. This year we had the lowest forest-fire losses ever recorded in the state of Washington. One of the Pacific Northwest's greatest newspapers celebrated the fact with a feature cartoon and editorial caption. In the picture Uncle Sam patted a proud CCC boy on the back, while the editorial lathered the Corps with praise, much of it deserved. No loggers were mentioned. Neither was God, who had surely done His part by sending rain regularly throughout the summer. There is no need to labor an obvious point. Immeasurably more important is the economic divergence of interest between public forestry agencies and the forest industries. In the latter the inexorable rule is, "Get out the logs or get out of business." The operator must make a profit. The superintendent must keep up log production on the one hand, and keep down logging costs on the other. The wage-earning logger must hi-ball with the bull of the woods and the brass ears to make a living. "No logs, no snooze," is a Swedish proverb.

In the times when loggers, high and low, interpreted this economic pressure as being also opposed to forest conservation practices, foresters made little headway outside the boundaries of national and state lands. Before cooperation could be had, it was as necessary for forestry to come down to earth as it was for lumbering to rise above individual self-interest.

Old Mother Necessity was the power that brought all the men of the forests together. Fire was the prime mover. Fire recognized no timber boundaries when it swept up mountain slopes in the drive of a summer east wind. And when smoke burst from the treetops, the rangers and the bulls of the woods, the Forest Service guards and the loggers all forgot prejudices and cross-purposes and pitched in together on the firelines. This led to cooperative measures for protection and preparation against forest fires.

Washington and Oregon timber-owners formed fire protection organizations and employed foresters with college degrees to head them. Forestry departments were created by the governments of the two states. Logging operators, individually at first, began to venture beyond the field of fire protection and experimented with planting, selective logging, and leaving seed areas

in cutovers. Such men as John B. Woods and C. S. Chapman made industrial forestry a vital force on the West Coast. The triple alliance of federal, state and private forestry agencies was strengthened by state laws, and by the Clarke-McNary Act. Finally, from the crackup of the Lumber Code was salvaged the industry's forestry program and organization. This now bears the weighty title of "The Joint Committee on Forest Conservation of the West Coast Lumbermen's and Pacific Northwest Loggers' Associations." It's more commonly known as "the Jaysee."

To me, as I sat through the seven hours of the meeting at Ted Goodyear's nursery, it seemed that forestry on the West Coast was at last working as a democratic institution. Here it was, down to earth from the conferences of the scientists and chiefs of the profession, and coming into the lives of the people—who, in this region, are people of the woods. There were no lectures on forest economics, no dissertations on multiple use and sustained yield theory. It was a town meeting on the subject of forest conservation, with every man in the crowd having a right to the floor, while Foresters Goodyear, Ferguson, Osborne, Tilton, Cowan and Heacox stood by simply to answer technical questions. Here was "dirt" forestry, conservation in calked boots.

Looking at it from a stump's-eye view, I felt mighty proud of my tribe, the loggers. Perhaps a visitor from the more rarefied atmosphere of academic conservation would have been depressed by the show. Those who stood up in the meeting talked about their own logging and timber problems, just as farmers do when they meet with experts from the Department of Agriculture. Most of the discussions were centered on such matters as the hoot-owl shift, the line between state authority and individual responsibility on close-downs in the fire season, provisions for watchmen and patrols, the problem of brake-shoe fires, equipment for fire protection and fire fighting, the use of electric detonators for summer shooting, communication of fire warnings, mopping up fires, the nightly radio broadcasts throughout the summer of the United States Weather Bureau's fire-weather forecasts, snag-falling, slash-disposal.

Naturally the logger thinks of forest conservation mainly in terms of fire protection. He'll tell you that in Western Washington and Oregon seventy-five per cent of reforestation is keeping fire out. Certainly the loggers are now doing a prime job on their side of the woods in reducing fires. In 1936 only four and six-tenths per cent of all forest fires in Washington started in logging operations, while recreationists and nature-lovers were responsible for thirty-nine per cent.

The forest fires problem was the main one before the meeting, but a good two hours was given to the question of providing for the restocking of logged land. Here the loggers turned to the foresters on the sidelines, each stating his particular problem and asking professional opinion on it. It was plain that this part of the program of West Coast industrial forestry was only in the ground-clearing stage, in comparison with the advance of fire-protection efforts. Yet every man present had made at least a beginning in providing for the reseeding of the land in his charge. No big promises were made, no new era for Western Washington forests was proclaimed; there was simply a general resolution to plug on at the job of making little trees grow in place of the big ones.

Plain stuff. Nothing to call out the band for, nothing to inspire cartoons and editorials in the newspapers, nothing for a report in a scientific journal of forestry. But I presume to think that the like of the meeting at the Capital Forest Nursery is of more fundamental importance than the most pretentious national forestry conferences. Constructive principles of forest practice and salutary and conserving laws may eventuate from the conferences, but only the people who live and labor in the forests can put them into effect. If the spirit of the national conference goes no further than the professionals of the forestry agencies, public and private, if it is not carried into the home of the forest-sustained family in the woods town, then it must fail.

I saw and heard that spirit working powerfully in the logging chiefs at the Bordeaux meeting. They, and no others, were in a position and equipped to make forest conservation a living force among the thousands of the camps and mills. And they were primed to do just that as they drove away in the long shadows.

Oftentimes the logger goes further and combines clear cutting with seed trees. In this case he has clear cut a setting and selected trees from the adjoining areas, leaving ample mother trees to scatter seed

BOBSLEDDING I THE

By HAZEL WHAR

"They're Off!"

Gripping tight for the first curve

"THEY'RE OFF!" shouts the starter as one of the great bobsleds shoots down Mt. Van Hoevenberg bob-run, past Eyrie, climbs the sheer wall of glare ice at Whiteface Curve, speeds on to Cliffside, rides high at hairpin Shady, rocks through Zig-Zag and roars down past the finish line in a cloud of snow as brakes are applied.

"One minute, forty-five seconds flat," drones the time-keeper, and the sound reverberates over the mountain

"One minute, forty-five seconds flat," echoes the crowd, "for a mile and a half. That's speed!"

"Track clear?" questions the starter. "Track clear at Cliffside." "Track clear at Whiteface," and on down the run from each telephone booth stationed at the principal curves.

Again, "They're off!" "Through Whiteface. Riding high!" as the loudspeakers amplify the words of the telephone men over the mountainside. "Past Shady! Approaching Zig-Zag. They're through!" And the bob rounds the curve at the clubhouse.

During a major bobsled race at Lake Placid, New York, the pulse of the racers is felt in the tenseness of the crowd that lines the mile-and-a-half course to catch a fleeting glimpse of the great sleds as they flash into sight and thunder down the run at sixty miles an hour. With the temperature at zero or below, the sky is an azure blue. The sun glistens on the white snow and frosty trees. The air is clear and sparkling.

At the bottom of the run the sleds are loaded into trucks. The racers climb aboard to ride up the steep, tortuous road. At the top they carefully rub the snow from the runners and place the sleds in position. They don crash helmets and goggles.

At a signal, the driver shoves off and hops on, each rider pushing and jumping into place as the bob starts down the run to gain a coveted second or two. The sled gathers momentum as the crew bobs in rhythm. It roars down the steep grade into Whiteface, flashes around the icy wall directly under the noses of the gasping crowd and races on. It climbs the high rim at Shady and shoots into the straightaway where the riders bob again. They swing through Zig-Zag, mounting first one side of the bowl of the "S" and then the other in a flash. The sled zooms around the last great bend at the bottom, passes under the bridge and slows to a stop on an upgrade as brakes send up a geyser of snow.

Sometimes there are as many as fifteen or twenty entries in the major races. Most of them are drawn from the Adirondack region, although some come from cities scattered across the country.

Records are constantly being broken. During the 1932 Olympics the best record for any one heat was one minute 54.28 seconds for the four-man sleds. In 1936 the time was cut to one minute 40.40 seconds and that was in a race when most of the American top-notch bobsledders were in Germany for the Fourth Olympic Winter Games. Last year unprecedented weather kept the run closed on all but four days.

Each year there are Adirondack, National and North American championship competitions as well as the trophy races for the Herbert H. Lehman and Conservation Commissioner Lithgow Osborne cups. The racing schedule usually starts between Christmas and New Year's and continues weekly until the end of February. There are competitions for novices which start at the half-mile or mile points of Shady and Whiteface Curves but the championship racers use the full length of the course.

Daily and after races, if the condition of the run permits, the slide is open for public riding. There is,

THE ADIRONDACKS

WHARTON

You gulp for breath

Photographs from Pierson Studio, Lake Placid

however, one small formality which must be complied with before the State of New York will allow anyone to slide down the Conservation-operated bob-run. If you wish to ride you must sign a waiver releasing the State from any damages incurred. The State will take no chances—the risk is all yours. But at the ticket booth there is always a crowd eager to ride. In 1936 more than 9,000 persons slid down the high-banked serpentine trench.

If it's your first attempt, you'll have to be content with starting from the half-mile point. That ride includes two major curves, Zig-Zag and the big bend at the bottom. But if you've had some practice you may be privileged to experience two full minutes or more of continuous thrills by riding from the top.

Up there you feel as if you were on top of the world. A dazzling white panorama spreads out before you. Far across the valley, lonely Whiteface Mountain lifts its cone-shaped head high into the blue vault. The bob-run winds like a shining white snake down the mountainside through a heavy cover of leafless trees and evergreens. You pick out the canvas sun-shades at Whiteface Curve and Shady. It seems like a tremendous drop to the clubhouse at the bottom. And it's several degrees colder than it is down there.

The starter takes your ticket, looks at your waiver and hands you a helmet—just in case you do crack up. The driver and brakeman are professional, so you take one of the center places on the low-slung sled, brace your feet against the footholds, and grasp the canvas straps.

You hear "Track clear" echoing over the mountain from the various telephone stations. The brakeman shoves the sled over the brink and you feel the impact of his body wedging you in as he jumps on. "They're off" mingles with a rushing, rattling sound in your ears.

Gripping tight, you swing around the first major curve and dash on to the high white wall of Whiteface. Giant hands seem to pounce on your shoulders as the sled clips to the top and drops to the trough. Your chin comes up as you leave the curve. Trees flash by like a long dark smudge. The wind stings your face, roars in your ears. You gulp for breath.

At Shady, giant hands swoop down for a second crushing stroke while you hang for a hair-breadth instant near the rim of that perpendicular side like a spider on the wall. Flying down the straightaway you feel as if you might land on that mountain ledge across the valley. You rock with the sled, high on the right, high on the left, as you cut through Zig-Zag. You rush on to the final curve where the clubhouse looms for a sickening moment. Then fine-powdered snow sprays down your back as the bob comes to a halt.

You rise from the sled in a blur of emotions. Your hands are stiff from gripping the straps.

As you walk away you almost feel that you had a glimpse into eternity in those two short minutes. You may ponder the safety of the sport especially when you consider the waiver you signed.

But if you question one of the Conservation Department men in charge of the run about it he probably would say that for the public it is not as dangerous as some of the fun the youngsters enjoy on the hills. Only professional drivers and brakemen are employed for public riding—most of them have been at it since the run first opened—and the speed is held to a safety level. If further proof is needed, he might add that the course has been altered in the last few years to make it easier to straighten the sleds as they leave the curves, and it is now so skillfully engineered that a weighted, empty sled has successfully made the full run without a mishap.

Accidents have occurred, but only minor ones as far as the public is concerned. The first year the run was

in operation, an elderly lady with a weak heart went to the top for a ride. At Whiteface Curve she fainted, but her only injury was an ice burn on her forehead. Packed in so closely, she was prevented from falling off and in spite of the speed attained from the top the brakeman brought the sled to a stop in seventy-five feet. To guard against such happenings, rules were made to allow only experienced riders to slide from the top.

In racing the story is different. Then the teams exert every effort to speed up in their race against time. Despite the claim that it is the fastest course in the world, the Mt. Van Hoevenberg bob-run has taken no toll of life. And that is more than can be said of the famous runs of Europe. But there have been some close calls.

During the 1932 Olympics at Lake Placid two of the crack German teams met with disaster while practicing. One of Europe's most noted daredevil drivers broke his arm when his sled flew out of the course at Shady Corner, although his teammates came through with only scratches. Another of the big unwieldy bobs nicked the telephone booth at Zig-Zag and crashed down through trees and boulders. Three of the crew went back to Germany in plaster casts.

In succeeding years other accidents have occurred during championship races but few have been serious. Some of the teams, however, have to credit sheer luck that they have come through unscathed or practically so. Catapulting crews have, more than once, landed in soft snowdrifts which a kindly Fate seems to have placed at hand.

Every Tom, Dick or Harry is not allowed to race just because he takes the notion. A would-be racer, whether driver, brakeman or merely crew, must be an experienced rider. It may mean the difference between a smash-up and a successful descent. A driver must first ride as passenger a number of times from Shady Corner, then as brakeman, before he is permitted to pilot a sled down the half-mile course. After he has passed a test he must follow the same procedure from the mile point at Whiteface. And again the routine is observed from the top. By that time he at least knows the feel of the run.

That means considerable, for there is an invisible but true course to follow. The secret lies in both taking and leaving the curves early. But it's difficult to judge precisely the contour of the curve when traveling at sixty miles an hour down a slippery grade. And harder still to follow the dictates of judgment when centrifugal force strikes a crushing blow. That is where a healthy, bob-run-developed sixth sense proves invaluable.

But it's not up to the driver alone to keep the sled right side up and provide a smooth, fast run. The technique of his crew aids him immeasurably. Should the riders lean toward the curves instead of staying with the bob, the sled skids and if it doesn't spill or jump a bank the speed is slowed. And beside the hefty push each gives at the start, the rhythmic bobbing or backward and forward swaying of the team rockets the sled along its downward course.

Don't think, however, that only men race the huge sleds. Six weeks after the Lake Placid course was opened, a team of girls placed well among some twenty-odd entrants in a novice race from the half-mile point. In 1936 a nineteen-year-old girl piloting a crew of men captured first honors in a major competition. Women, in fact, have raced since the sport first started.

Flying down the straightaway at a mile a minute, you wonder where you will land

Sliding downhill even on a bobsled with a dozen or more riders is old. But the sport of real bobsledding on engineered courses is fairly new.

In 1890 an American joined two small American sleds together with a plank and, with a few friends, slid down the mountains at St. Moritz, Switzerland. Other Alpine winter guests followed suit and soon racing started. Five years later the St. Moritz Tobogganning Club adopted bobsledding and organized competitions on an iced slide.

As it was conducted in those early days the sport was highly dangerous. In order to control and prevent it from claiming too many fatalities a new organization was formed and constructed a snow bob-run alongside the famous Cresta Run, which is used for skeleton racing.

In comparison with modern ones the new Cresta Road was crude. Rules required that teams include two women. The crew of five lay prone on the sleds, which were dispatched at three-minute intervals with no allowance for spills or if two sleds crashed into each other. And a team was disqualified if its overturned sled held up a following one.

In 1904 a new mile-long course was constructed at St. Moritz, which was the forerunner of the forty or more well-known bob-runs now in Europe. Visiting sportsmen took the idea back to their own countries and racing courses were built at all leading winter resorts. In 1913 the International Federation of Bobsleigh and Tobogganning was organized.

The sport of bobsledding came to this continent when the United States was awarded the III Olympic Winter Games. In 1929 the Lake Placid Club opened its half-mile Intervales run but abandoned it when the Olympic course was built.

Although plans are under way to construct other bob-runs, the Mt. Van Hoevenberg track, eight miles from Lake Placid, has been, up to (*Continuing on page* 78)

A LOOK AT THE HAWKS

By ARCHIBALD RUTLEDGE

The worst of the falcons —the savage duck hawk

From Birds of Massachusetts by Forbush

THERE is no subject more pertinent to the conservation of game in North America than the question of the relation of the *Raptores,* or Birds of Prey, to those birds and animals that afford hunters their sport; and this question is far more complex and difficult than it was considered a few years ago. When I was a boy, the only good hawk was a dead one; and if a farmer killed one of any kind, he was wont to nail it up on his barn as a sign that he was a public benefactor. Now we realize that we ought to distinguish the harmful from the beneficial; but we still have a long way to go. I take it that, in general, where the law of the wilderness prevails, nature takes care of her own balance; but the intrusion of man upsets that balance, and then we have to try as carefully as we can to adjust it. And this business of adjusting an ancient law of nature to man-made conditions is a most difficult and delicate matter.

The great Order of the Birds of Prey includes vultures, owls, ospreys, falcons, eagles, caracaras, hawks, and kites. As I have to prescribe bounds for myself, I am going to omit a discussion of the status of the vultures, owls, eagles, and ospreys, and talk about falcons, hawks, and kites. These are closely akin, and may be treated as if they were one group. No doubt there will be many who will disagree with my conclusions; I can only say that my field study of these birds has been with me lifelong, and that I have tried to arrive at honest convictions—though in many cases they are still tentative.

There are four kites in America: the swallow-tailed kite, perhaps the swiftest and most graceful bird in all the world; the Mississippi, the white-tailed, and the Everglades. Though these are birds of prey, they feed almost entirely on reptiles, batrachians, and large insects; and this whole beautiful family is absolutely beneficial to man, whether that person be a sportsman, a farmer, or just a plain man. It is a crime to kill a kite; yet many are shot with the virtuous feeling that the world has been rid of rapacious predators.

At this point we clearly see the origin of one great difficulty in this question: so many raptores *look* harmful; and not one man in a million can identify with certainty each member of this large order. It is just as if there were thirty people in one hefty family, one of whom happened to be a murderer; and we just proceeded to kill them all off on principle. The Cooper's hawk is a very bad actor. The red-tailed hawk is a valuable bird. Yet the average hunter will shoot a red-tailed hawk every time he gets the chance. The trouble here, as you see, is ignorance; and conservationists have to stage and to continue to stage a campaign of instruction. Some states are doing valiant work along that line right now, even to the extent of sending mounted specimens of certain winged highwaymen (such as the goshawk) into many communities in

Of the true hawks, the author indicts the big Cooper's, the sharp-shinned and the goshawk as renegades in that they do more harm than good. These swift winged killers are shown in the above plate by Allan Brooks, reproduced from "Bird Portraits in Color", published by the University of Minnesota. The birds on the left are Cooper's, on the right sharp-shinned, and below, the goshawk. In the upper groups, the lower birds are adults. Below, the upper bird is adult.

order that the people may see and may recognize real public enemies.

I have dismissed the kites as beneficial. I wish I could do the same thing with the falcons, eight of which are residents of North America; or nine, if we admit Audubon's Caracara, which feeds more on carrion than aught else. There are four gyrfalcons, all practically alike, differing mainly only in shades of coloring. As all of these are Arctic species, and only casual visitors to the far northern states during the winter, I doubt if they need much consideration except from those whom they do visit. The gyrfalcons are killers of game; but their swiftness in flight, their determination, their courage, and their skill appeal to us. There is a nobility about these birds that we associate with chivalry. Dauntless and picturesque, they are among the most heroic in spirit of all birds; and it seems a shame to destroy them. And since most of their hunting is done far from the ordinary haunts of man, when they do happen to appear in his bailiwick, I think they should be spared in recognition of their utterly and wildly bold and adventurous spirits.

Courtesy of Audubon Societies

The rough-legged hawk has a clean bill of health in that it is distinctly beneficial

The Prairie falcon is a bird of the open plains of the West. Sometimes known as the American Lanner (female) or Lanneret (male), it is at home in typical far western country: over canyons, over sage-brush deserts, up and down the lonely wastes of air that border buttes and chasms, shaggy precipices, and deep gulches.

While the economic status of this bird is not, and perhaps cannot be, well fixed, its chief food appears to be birds, especially game birds. It does destroy rodents, and is especially fond of chipmunks. It is certainly not a bird of primary menace to man. At times it may be beneficial; meanwhile it is surely graceful and beautiful to behold, sometimes giving the fluid magic of life to barren wastes that else were lifeless.

The sparrow hawk is the smallest of the falcons; indeed, if we omit the shrike, it is the smallest of the true birds of prey. At the same time it is the only gentle one of the falcon tribe; indeed, he is almost sociable. Better than that, he is distinctly beneficial, so that to kill one is to give the cause of conservation a distinct setback. True, he makes, especially in that season when he has hungry young to feed, an occasional raid on a chicken-yard. I have seen him catch and kill, on the wing, a quail; but I believe such an occurrence to be rare. Its normal food habits have been very accurately described by Dr. A. K. Fisher: "At times it attacks small birds and young chickens, but these irregularities are so infrequent that they are more than outweighed by its destruction of mice, grasshoppers, and crickets."

I think, indeed, that the sparrow hawk destroys fewer insects than would be killed by the small birds that he eats; nevertheless this is an attractive species, and it would seem a pity to exterminate it.

The next falcon we have to consider is the pigeon hawk, known also as the bullet hawk and the blue darter. Fortunately, this miniature duck hawk is nowhere common; I say fortunately, for its food consists almost wholly of birds. It is especially hard on shore birds; and as they haunt exposed situations, they are utterly at the mercy of this speedy, tough, relentless, and fierce destroyer. If the pigeon hawk were not so rare a bird, it might properly be considered one on whom we should always turn thumbs down. However, whenever a bird possesses noble qualities, we are often inclined by the presence of those qualities to stay our hand, despite his depredations.

But we should not lose sight that *certain individuals in certain localities* may commit terrible depredations. These should be destroyed.

The last and by all odds the worst of the falcons is the famed duck hawk, the renowned peregrine falcon. As far as I know, it is the only American bird that has a positive lust for slaying. He kills more than he needs to eat. Hurtling into a flock of plover or yellowlegs, he will strike down three times as many as he requires for food. He seems to take a fierce delight in proving his ability as a killer. Swifter than the goshawk, his only superior in speed is that aerial acrobat, the swallow-tailed kite. However, I have seen the Wilson snipe escape him; yet it did not appear to me that the duck hawk was taking the pursuit in real earnest.

So savage is the duck hawk that he does not hesitate to dispute with a hunter his right to a duck he has shot. On more than one occasion, while hunting in the Santee Delta, where both wild ducks and the duck hawk winter, I have had a duck hawk take a dead duck from me—sometimes when (*Continuing on page* 92)

Winter in the Sierras

SURVEYORS OF THE SNOW

By GEORGE A. LEWIS

Photographs by the Author

THE City of Los Angeles, noted for sunshine and flowers the year round, was among the first in the country to become vitally interested in snow—that is, the water that is contained in snow. As early as 1926 this metropolis of Southern California, its need for water increasing with a growing population, and also having experienced the tragedy of floods and drought, looked to the high Sierras at its back where, during the winter months, snow piled up to a depth of fourteen feet, and wondered. Would it be possible to predict the amount of water in this snow—water that would later be available for domestic, power, irrigation and other uses—in advance of the runoff season? If the amount were known in advance, and rightfully reckoned, it would be no difficult matter to plan for its conservation and best use. Too, the city would be forewarned of impending floods or drought.

It was possible, thanks to the new science of snow surveying and the man who first realized its value in this country and devised a practical method by which basic data could be readily gathered and applied—Dr. J. E. Church, meteorologist at the University of Nevada. Los Angeles and other cities no longer needed to guess and hope for the best where their snow crop was concerned. The science of snow surveying made it possible to know within a reasonable degree of accuracy the amount of runoff that will result from a season's snowfall.

At regular intervals, in late winter and early spring before melting begins, survey parties now penetrate far back in the Sierras to measure the depth and water content of the snow crop in several basins stretching along a hundred mile crest.

It is our job to make these measurements. Interesting? Thrilling? Yes, and sometimes a little dangerous, especially if you happen to get caught in a high mountain pass when slides are starting, with wind and sleet braiding fancy patterns on your parka collar. Or when

you ski out on what appears to be perfectly level snow and suddenly find yourself dropping into space.

One evening last February, at an elevation of 11,400 feet, two men were returning from a survey in Piute Pass. Lack of perspective, due to fresh snow, plus an overcast sky, made skiing poor and they traveled slowly. Then it happened. Coasting across apparently level terrain, both men plunged over a cliff. Recovering from the thirty-foot fall, one surveyor found his partner in a crumpled heap, unconscious. It was a tough spot—darkness near, the temperature already below zero, and miles from the shelter cabin. Fortunately it was downhill, and when the injured man regained consciousness, his companion strapped him face down on his skis, and started the torturous descent.

Suffering from a twisted knee and internal injuries, the injured surveyor lay on his belly and, by digging his mittened hands into the snow, helped propel himself down the canyon. Reaching the cabin, a still more difficult task confronted them—the job of lowering a half frozen, injured man down a ten-foot shaft-like entrance through the snow to the cabin. Somehow, it was accomplished and, after long hours of rendering first aid, the injured man was wrapped in all available bedding and left to wait on his bunk, fifteen feet below the top of the drifts, while his partner raced down the canyon to Bishop Creek and the nearest telephone.

Eight hours later we were starting the long climb to his rescue—ten of us on snowshoes, dragging a toboggan. There was little talk. Heavy exertion at high altitude will do queer things to your nervous system and talking consumes energy. The hinges of your tongue get creaky and unless you eat occasionally, to keep the stomach from getting empty, your heart and lungs are apt to try changing places.

At the half-way point five men were detailed to wait, and we left them huddled around a campfire while we continued our upward climb. They would be rested and ready to carry on with our burden when we returned. It was hard going, that last five miles, and our return with the injured surveyor lashed to the toboggan was even worse. With the setting sun, frost began falling like tinseled rain and soon the crusted snow became so icy that we could no longer pick our way around the steep side slopes. There was no alternative but to follow the bottom of the canyon, and trust that we could negotiate the several abrupt drops in its course. A full moon arose to both assist and retard our descent. Black shadows now knifed across the canyon and required careful inspection to distinguish them from the vertical drops.

Twice the canyon narrowed to little more than the toboggan's width, with slopes so steep that it was necessary to lower the toboggan the length of our ropes, then brace ourselves while others of the party climbed down to repeat the operation. On the last mile, an almost vertical drop, we removed our snowshoes, tied the ropes around our waists and by digging our heels into the crust lowered the toboggan foot by foot. It was past midnight when we loaded the injured man into a waiting ambulance. Within an hour he was in the hospital and on his way to complete recovery.

Our trips to the snow courses seldom end like that one. Usually it's like getting paid for playing, especially if you like to play in the snow or enjoy a breath of blizzard in your whiskers now and then. Last winter, after prolonged storms had closed all roads in the high country, we keenly anticipated the season's first survey, for when the highways are blocked we use dog teams for the long run back to the base camps—and who wouldn't go for that?

Clearing skies found us on our way—slowly following a snowplow as it cut a path through the drifts. Arriving at the end of the road for automobiles, we were greeted by Tex Cushion, veteran musher of the Sierras, waiting with his dog teams to take us to the patrol station at Mammoth, twenty-two miles to the north. There, under the crest of the majestic Sierras, flanked on the east by the shimmering wastes of Death Valley, the waters of Owens River rise. Through natural and man made channels it flows by gravity to the City of Los Angeles, 350 miles to the southwest.

Nine great Malamutes watched as we transferred our skis and instruments to the Yukon sled. Crouched in the snow, their low whining betrayed an eagerness to be off. While Tex completed the job by lashing everything securely, we donned fur lined parkas in preparation for the long cold ride.

Following a well packed trail, we headed up the valley. At noon a short halt gave time for lunch and a rest for the dogs, while the sled was tipped on its side

From the Mammoth Patrol Station, it's dog teams and skis for the snow surveyors

The author with one of the snow dogs. These dogs are very affectionate despite the wolf strain in their blood

Up the valley by dog team

Back packing snow measuring instrument into the depth of the forest

Sinking the tube into the snow

Cutting a core through seventeen feet of snow

Weighing the tube with its snow core to determine the water content of the snow

to prevent the runners from freezing down—and also to provide a windbreak for us.

Our team traveled easily, for their load came well within the mushers' rule of "load light, tie tight, and go like hell." As we reached the foothills below Mammoth and started the upward climb, the sky became overcast. In a short time we were enveloped in a howling blizzard. These local storms are of fierce intensity while they last and peculiar in the manner of their occurrence. Descending with almost no warning from over the jagged crest of the Sierras on the west, they sweep in a wide semi-circle past Deadman Summit, ten miles to the north, and then retreat back to the headwaters of the San Joaquin River.

Fortunately the wind came from behind and we were content to tuck our heads into our parkas and leave the business of following the trail to Tioga, the lead dog. Occasional glimpses during a momentary lull of the wind revealed him—traces slack, feeling his way confidently along the trail. A lead dog's slack traces do not signify that he is shirking. He is not supposed to pull. It is his duty to find and hold the trail, and to guide his laboring teammates at the command of the driver.

Darkness was gathering as we neared the end of our journey; and topping the last rise above the patrol station, twinkling lights and a welcoming howl from the kennels reminded us of such commonplace things as a hot dinner and a good bed. As we ate, the radio gave us the weather report—"storms over the Sierras."

The following day fulfilled all phases of the forecast and confined us to visiting the kennels, where we renewed our friendship with the dogs. Great lovable creatures, the original strain imported from Alaska, these dogs have been bred up until a full grown male will weigh over one hundred pounds and pull a load equal to his own weight. Being Malamutes, they never bark. It may be well to add, however, that they can howl in direct proportion to their size. Their feet, so necessary to their existence, are capable of spreading to nearly twice their normal size when pulling in soft snow, and the ball of the foot is protected by a generous growth of hair similar to that of the snowshoe rabbit.

The cartilage of the nose does not grow fast to the upper jaw as it does on most dogs, but can be rolled back like that of a bear. This assists in keeping a tender nose out of the way in a fight, and fighting is no small part of a snow-dog's life. From puppyhood he must learn to protect himself. If once downed in a fight the entire pack, unless beaten off, will quickly close in to finish him. Yet to man, these dogs are affectionate animals, eager and jealous for the pat of a hand. When raised away from the pack they make good house dogs. Once having lost the smell of the kennels, however, a dog must never be allowed to remain with the pack unattended, even though they work together each day, for they will kill him at the first opportunity.

Chief, for instance, was raised from puppyhood by Mrs. Cushion. He often visited the kennels at feeding time, and there one evening was inadvertently locked in. When Malamutes fight there is no warning uproar. Their struggles are swift, silent and savage. When Tex returned to the house he discovered Chief's absence and, sensing disaster, raced back to the kennels. There in a maelstrom of fighting dogs he found Chief making his last stand. Even as Tex vaulted the fence and started wielding his whip, the great dog went down. When the last maddened fighter had been beaten away, Chief lay dead. Although outnumbered ten to one, he had made their victory a costly one. Stretched in the snow, three of his enemies joined him in death.

Dawn found us at breakfast, anxious to do justice to Mrs. Cushion's hot cakes, and then to begin our work. Although the sky was dark and threatening as we took to the trail, we decided to run the top course and so started the eight-mile climb to the summit of Mammoth Pass. Our equipment—sampler tubes, scales, etc.—was conveniently carried in special built cases; fastened to pack boards, the total weighed about thirty pounds.

By noon we were almost to the summit and, finding a sheltered nook among the trees, stopped for lunch. Although warm from our exertion, winter breezes at 9,000 feet elevation soon cool one off, and we lost no time building a fire. To prevent the fire from sinking out of sight in the deep snow, it is prepared by first laying a mat of green boughs, then firewood, procured by breaking off dead limbs, is placed on top.

Lunch over, we continued our climb and had just reached the summit of the pass when the lowering clouds began spitting snow. Now it was a race. If we could finish the sampling before the storm made it impossible to follow the red and yellow markers that are fastened high in the trees to define the course, all would be well. If not, we would have to retreat and try again another day.

The thought of that long climb being made for naught gave impetus to our work and we soon had the instruments out of the packs. Screwing six sections of the steel tubing together, we made up an eighteen foot sampler and cut the first core.

The sampler tube with its serrated annular bit is the most important item of a snow surveyor's equipment. Substitutes may be made for other instruments, but not for the sampler tube. The ease and accuracy with which a core can be cut through twenty or even thirty feet of solidly packed snow are the major factors by which the science of snow surveying has progressed. Little change, except in kind of metal used, has been made in its design since first devised by Dr. Church and his associates. A core is taken by inserting the bit in the snow and forcing the tube down with a slight rotating movement. The tube is graduated in inches on the outside, by which to measure the depth, and a slight shoulder on the inside of the bit insures retainment of the core when the tube is withdrawn. Staggered narrow slots allow the length of the core to be observed. With the tube well varnished inside and out to prevent sticking, a core can be taken that will measure only slightly less than the depth of the snow cover.

The spring balance scales by which the water content is determined are calibrated in inches of water and also to the diameter of the cutting bit. Thus after the scale has been set to read zero with the empty tube in the cradle, the water content of the core may be read directly from the scale when tube and core are weighed.

Chaining the distance to each observation point, we advanced slowly over the 1,800-foot course, taking a sample every fifty feet. The accuracy both of a survey and the resultant forecast of runoff depend greatly on the observations being made in exactly the same spot each survey. Hence the careful measurement of length and the markers to keep us on line. As we neared the end of the course it became increasingly difficult to follow the markers, and by the time we finished weighing the last core the wind was spawning a blizzard. Repacking our equipment, we headed for the patrol station with the storm at our backs.

When reduced, our field notes showed an average depth of almost fourteen feet of snow, containing thirty-five per cent water. The maximum depth encountered was slightly (*Continuing on page* 95)

Bangor's Memorial to the Log Drivers

HISTORIC LUMBER TOWNS

I. Bangor, Maine

By STEWART H. HOLBROOK

THE City of Bangor, on Maine's Penobscot River, was the first of the classic lumber towns and in some respects the greatest of them all. Conditions were nothing short of perfect to make it so.

For one thing, rum was plentiful and cheap, and you couldn't do much logging a century ago without a goodly supply of the West Indies and Medford firewater.

And north from Bangor, and drained by the river that turned her sawmills, there stretched two and one-half million acres of black and wonderful timber. Once he saw it, the scene gripped the fancy of young Henry Thoreau, visiting here from Concord, down in Massachusetts. "There stands the City of Bangor," he wrote in 1846, "like a star on the edge of night, still hewing at the forest of which it is built, already overflowing with the luxuries and refinements of Europe and sending its vessels to Spain, to England, and to the West Indies for its groceries—and yet only a few ax-men have gone up-river into the howling wilderness that feeds it."

A howling wilderness it was. The tall spruce was dwarfed by the towering white pines that rose up, straight as masts and light as cork, close to 200 feet above the ground. How far north of Bangor ran this forest, no man knew. Some said it reached to the Pole itself; everybody said it would last forever. It would take a small war and two or three pretty stirring orations by Dan'l Webster to learn where the Yankee pine left off and the Canuck pine began.

Through this vast forest ran the Penobscot, with all its lakes and tributaries, in season a swift-moving highway down which with no power other than brawn and peavey the forest could be brought to mills and tidewater at Bangor.

This is the first of a series of four articles on lumber towns whose fame stands preeminent in the colorful history of American lumbering. Articles to follow will describe Saginaw and Muskegon, Michigan, and Grays Harbor, Washington, at the heyday of their logging booms.

It was a temperamental highway, difficult to manage in spite of dams, but manage it they did, and for a full century sharp-shod men walked fair down the middle of it on bobbing logs. Fifty miles south of town, down the deep Penobscot, was the open sea. The tides in the river were remarkably high, and deep-sea skippers liked the port of Bangor, for here they could, at low-water slack, fill their casks easily from over ship's side and find the Penobscot water fresh and saltless, though in time it came to have the flavor of pine in it.

A numerous fleet, Bangor-built and Bangor-owned, carried lumber from here to the world and brought back rum, and molasses and sugar to be made into more rum to get more logs to make more lumber to trade for more rum. It was all a perfect cycle from the lumbermen's viewpoint, while from that of the practicing logger—the man who used the ax and saw—Bangor was nothing less than Paradise. Booze and bawds, and battle with roistering loggers—there was really nothing else in life, except timber, and that was handy by. Bangor set the classic pattern of lumber towns that would follow the timberline west to the Pacific shore, distant by three thousand miles, one hundred years, and two trillion board feet of lumber.

God indeed had smiled on the rising lumber capital of the world, and He caused one of His apostles to name it. When the citizens of the humming town on the Penobscot wanted a town charter, they drew up an official application. The name of their new home in the forest, they decided, should be "Sunbury," which handsome name was inscribed in the application and the document turned over to the Reverend Seth Noble, local divine, to carry to Boston where the Great Seal and governor's signature might be put upon it.

But the Reverend Seth cared little for the chosen name, which smelled of paganism. On his way to Boston he erased it and inserted in a neat round hand the name by which his favorite hymn was known in the old hymnals, "Bangor."

The name fitted Bangor, Maine, and so did the hymn itself, although the loggers probably didn't realize how well:

Hark from the tombs a doleful sound;
Mine ears attend the cry—
Ye living men, come view the ground
Where ye must shortly die.

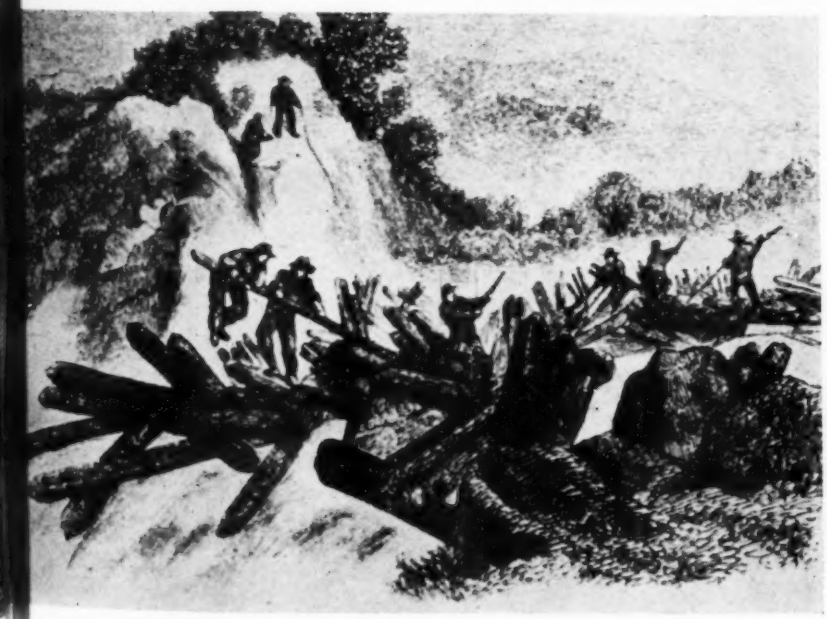
Scenes in the Maine woods—as depicted by old prints—when Bangor was in its glory

And die they did, up there in the gloom of the two million acres of tall black stuff—when a sudden wind blew a falling pine the wrong way, when there was the sickening slump in a mile-long landing of logs before they rolled death over a man. Or, the whiskered Old Man with the Scythe might hold off, jokingly, until the logs were all in the stream, then strike one down into the white boiling water of the Ripogenus, on the West Branch. Death always stood just behind the logger and very close to the riverman. That's why loggers lived the way they did. Death might come out of the trees above, with the merest whisssh of warning, or it might wait in the form of a watered rock, just around the next bend in the river. . . . Little wonder they pounded on the white pine bars of Bangor's groggeries and yelled for another drink all around.

The early years of Bangor saw but moderate progress.

The first settler hewed out his home there in 1769, and within a year the first of a long line of sawmills was going. The first ship with a Bangor houseflag didn't go down the ways until 1811. Presently, and suddenly, there came the land-boom. Indians, white hunters, and even a few land-lookers had long told of the mighty trees in the interminable forests of the Penobscot. These tales finally permeated to the populous cities of Portland and Portsmouth and even to metropolitan Boston and Philadelphia, where lived men of vision and substance. Good pines that were handy to streams, they knew, were already becoming scarce along the lower reaches of the Connecticut, the Saco, the Androscoggin and the Kennebec. By the century's turn men of means were buying Penobscot timber.

Sketches. Courtesy University of Maine



Logging with oxen and breaking a log jam on the Penobscot

The District of Maine—there was no State of Maine until 1820—was happy to rid of its timberland. It disposed of much of this by grants to colleges and academies and to veterans of the Revolutionary Army; and it sold even more through lotteries. Money was hard to come by, for the provincial governments of the time. Timberland was not only worthless; it was in the way. You had, as they said, to let daylight into the swamp before corn and potatoes would grow.

So the buying and granting went on. William Bingham, wealthy Philadelphian, sent a timber cruiser on a voyage through the woods of central and eastern Maine; and then Mr. Bingham bought, for twelve and a half cents an acre, a goodly slice of Maine for himself. In one hunk Mr. Bingham purchased 2,107,396 acres of white pine and spruce in which no ax, save it be an Indian's stone tomahawk, had been heard.

It is beyond the minds of men today to conceive of two million acres of virgin timber in one solid block, owned by one man. For more than a century afterward a horde of loggers hacked away at the Bingham Purchase, driving part down the Kennebec, part down the Penobscot; and of a winter's work one logger would say to another that he had been working on the Kennebeck Million, or the Penobscot Million.

There were many lesser but still large purchases, too, and Bangor in 1835 became the center of a land-boom that would be matched only in the Far West of later years. Timberland that brought six to twelve cents a few years before now changed hands at six, eight and even ten dollars. Wildcatters swarmed. They staged auction-banquets with real champagne poured from the original bottles into washtubs. Everybody was buying or selling timberland. That is, everybody except the lumberjacks. They drank what free champagne they could get, then went into the woods to cut the timber whose owners might change twice in a day.

The land boom, of course, soon burst, but logging along the Penobscot was just getting a good start. Railroad construction had been pushed twelve miles up-river as early as 1836, to reach Oldtown and Orono, where most of the sawmills centered. Its rails were of wood, with strap-iron spiked along the top, and its locomotive had been made in England by Stephenson himself. The redoubtable General Sam Veazie bought this road and started out to make it go.

(*Continuing on page* 94)

The fruit of the cocoa tree grows not on the branches but on the trunk near the ground

COCOA---THE DIVINE FOOD

By WOLFGANG VON HAGEN

Photographs by the Author

OF THE great variety of foods provided by the primitive people of the New World, none has had a more universal application than the cocoa-bean which, toasted and ground, is our chocolate. Its uses are far too numerous to list here, but it is safe to say that the bean, in one form or another, finds its way into the households of the civilized world.

When Hernan Cortez, conqueror of Mexico, was ushered into the presence of Montezuma, the first kindly offer in greeting was a bowl of *atolli*—maize gruel, flavored with the cocoa-bean, vanilla, and the honey of wild bees. During his audience he was served continuously with this drink, which he learned to appreciate, and when he asked through his interpreters what the drink was, he was told that it was called *kakahua* in Tabasco and Vera Cruz, from whence it came, but in Mexico, capital of the Aztecs, it was called *cacahuatl*. The Spanish chroniclers, being unable to pronounce *cacahuatl*, corrupted it into *cacahuate*, and thence into chocolate, from which all languages of Western civilization have taken their words to describe cocoa.

The Aztec kings themselves had developed a taste for the drink that was almost a passion. All territories subject to the State of Tenochtitlan that had cocoa in their realms, were forced to make tribute of it to Mexico every few months. On codices of the Mexican tributes of their vassal states, the cocoa-bean may be seen, literally depicted in the large wicker baskets, with the name of the vassal state supplying it, as well as the number of baskets to be brought seasonally to the Emperor. Xoconocho was to give five cargoes, Huauthla 400 cargoes, Quautochoo one cargo, and so on, in direct ratio to their size and wealth. As cocoa grows only in the humid, hot parts of Mexico and Central America, much of this princely tribute had to be transported hundreds of miles—a tribute to Aztec organization as well as to the delicate palate of an Emperor.

Chocolate assumed great popularity when introduced into the Court of Spain, but because of its scarcity remained for a good many years the drink of princes. The English buccaneers undid this princely monopoly of taste, however. They found the bean growing in profusion along the Honduranian Miskito Coast, even being used as money in the Bay of Campeche. "The Cocoa tree," wrote Dampier, the buccaneer, "hath a Body about a Foot and half thick (the largest sort)

After the drying process, each bean is graded by hand. The beans are then sacked and transported by barges to shipping points

and seven or eight foot high, to the branches, which are large spreading like an Oak with a pretty thick smooth dark-green Leaf, shaped like that of a Plum Tree, but larger. The Nuts are enclosed in Pods as big as a Man's Fists put together."

So with the buccaneers having included chocolate as one of their requisites they continued to harass the Spanish Main, usually taking with them some of the Miskito Indians to fish and, among other things, to prepare their cocoa beans. And in pursuit of his "worthy trade" William Dampier sailed into the Bay of Guayaquil to sack the city of that name. He remarked that: "My worthy consort Mr. Ringrose commends most the Quaiquil Nut." But Dampier stood out for the flavor of the "Caracoes Nut." If one can picture two English cut-throats, Mr. Dampier and the "worthy consort" Mr. Ringrose, arguing over the respective excellencies of chocolate while waiting to sack the city, one can well imagine what chocolate meant even to these pirates.

A scene at Guayaquil, to which the small boats carry cocoa from the haciendas high up the River Guayas

As the buccaneers found Guayaquil, busily engaged in the industry of harvesting and shipping cocoa-beans to Peru, to the Vice-Royalty of Quito, to Acapulco in Mexico, and to the Philippines, so we found it, with many changes of course, when we journeyed up and down the Rio Guayas and into the great cocoa haciendas.

Also, we found the cocoa tree pretty much as the Privateer Dampier described it—from seven to ten feet high, with a trunk diameter up to seven inches. The older trees, we discovered, tend to lean to one side and the trunks become arched. We also observed that the fruit grows not on the branches of the tree, but on its trunk.

Later we were to find that the cocoa tree when young is very delicate and requires considerable shade. Therefore the practice is to use the banana tree as a shade plant until the cocoa is at least six years old, the banana tree also being a source of revenue while the cocoa is unproductive. In the sixth year of its growth the cocoa begins to fruit and continues until the plant is as old as seventy years. And, after seventy years, it is necessary only to fell it and prune the roots to produce another tree in its place.

It is very strange to pass through endless forests of cocoa and see the fruit pod growing only a few inches above the ground, although the tree may be ten feet in height. The tree bears three times a year—in March, June and September—which shows the bountifulness of tropical nature. Each tree yields about fifty pods each harvest.

The pods, cucumber shaped, are from five to ten inches in length and proportionately developed in width, with colors varying between chrome yellow and brilliant red. Within the pod there are at least fifty seeds embedded in a soft fibrous pith. The pod is easily opened.

In harvesting, the pods are cut from the tree, opened and put aside to undergo a slight fermentation. After this the beans are extracted and sent by means of burros to the hacienda. There they are separated by hand, work usually allotted to elderly women and young children, and the beans placed on large drying racks and given the maximum of sun-drying, after which they are sorted. No machine is capable of discerning the class of beans that makes high and low grades of chocolate; this is and will continue to be the work of many experienced men. When thoroughly dry the beans appear red on the outside and they are easily crumbled in the hand. Inside, they are the color of natural chocolate.

The dried cocoa-beans, bagged, are sent to Guayaquil, the shipping center of all the chocolate of Ecuador.

As cocoa is the greatest export of Ecuador it has a number of privileges. For the payment of a small sum to the City Council one can spread out a piece of tarpaulin in the city streets and dump one's cocoa-beans thereon to dry. In Guayaquil, metropolis of 120,000 people, cocoa makes known that its export supplies one third of the country's revenue and monopolizes accordingly.

The traffic in the commercial section is often paralyzed as the drying process extends into the main thoroughfares. Men are engaged in dumping and scraping the cocoa onto the (*Continuing on page* 96)

EDITORIAL

APPRAISING THE CCC

President Roosevelt's proposed curtailment of the Civilian Conservation Corps to 1,200 camps, if carried into effect, will mean a general readjustment of Corps activities. The proposal makes timely an appraisal of the CCC based upon past and present activities and its future opportunities as an instrument of governmental conservation. There is no question but that the Corps has been one of the most noteworthy projects of President Roosevelt's administration. There has been performed an immense amount of valuable work in both social and material fields. Its basic idea, we think, is as sound today as it was when the Corps was launched in 1933.

On the other hand, the question may well be raised if the CCC has really found its place as a permanent agency of the government. If we may offer constructive criticism, it is that its activities have become too diffused, too miscellaneous, too will-o'-the-wisp in character and too lacking in centralized purpose from a work standpoint. Its activities, for example, have ranged from delivering mail during Christmas week to swatting mosquitos, figuratively speaking, during summer months. It has been used too generally and too freely to perform work which already established agencies of the government are charged with performing. In lesser degree it has been too much swayed by political pulling and hauling. After four years, it fails to stand for clearly defined work in a clearly defined conservation field.

The fundamental merit of the CCC, we think, is its inspirational possibilities for the youth of America. When and if it can achieve the happy combination of youthful endeavor and public work so clearly worthwhile as to thrill youth in its doing, it will have found the trail to its mountain top. This trail lies not in a jungle of miscellaneous, leaf-raking, park-manicuring activities, but out where really important work needs to be done—and cannot otherwise be done by established agencies—to conserve our natural resources and to build a better country. Here is where the CCC boys will get real inspiration and patriotism and will make their greatest contribution to the conservation of natural resources. And here the need of the CCC is greatest.

THE BIG BAD WOLF AGAIN

The annual report of the head of the Forest Service, F. A. Silcox, raises anew the question of public regulation of the forest industry in its treatment of forest properties. The Chief Forester clearly has reached the conviction that voluntary forestry on the part of lumbermen and forest owners cannot be depended upon to safeguard future timber supplies and human welfare inherent in growing forests. In fact he gives lumbermen little or no credit in moving forward in a substantial way with improved forest practices in the handling of timber properties, and he asserts that nowhere in the world has purely voluntary action succeeded in establishing sustained yield forest management with security for timber communities.

On this premise he comes out boldly for public compulsion as one point of a three point forest program for the United States. The other two points are a great expansion of public ownership of forest lands and an extension of public cooperation with private forest owners. Mr. Silcox's proposal is by no means new. Ever since forestry in this country stepped out of toddling clothes, the question of public regulation has been hotly debated. No question indeed has generated more talk and less action. Like the big bad wolf in story books, regulation has lurked in the limbo to scare lumbermen into practicing forestry. Mr. Silcox, however, is the first Chief Forester to recommend while in office that the principle be applied as the whip-lash of a trinity of federal statutes. To this extent he brings the ghost into the open for close handling under the spotlight of present day political economy.

It is to be regretted that in bringing up the question anew, Mr. Silcox has presented it in generalities that make pointed discussion exceedingly difficult and improbable. Heretofore, threat of an impending timber famine has been advanced as calling for public regulation but that argument having lost force through years of constantly declining lumber demand, Mr. Silcox shifts the emphasis to the potential possibilities of wood for diversified industrialism and to forests as "instruments for human welfare." No one can disagree with that viewpoint but when he frames his picture of need for regulation now in forest statistics that are out of date and admittedly unreliable, his picture seems out of focus and his case for regulation loses reality and sharpness. Furthermore, he leaves to the reader's imagination what form of public control he has in mind, how it would be applied and administered and what the probable cost would be to the taxpaying public.

The forest industry is one of the nation's major and most diversified industries. Regulation presents exceedingly difficult and involved problems and in approaching it the public will want a clear and dependable picture of the need for action and the form of action proposed. Had the Forester presented a lucid prescription of his regulation plan supported by information and statistics brought down to date by the forest survey for those regions where it has yielded late information; had he presented a complete and down-to-date statement of the progress of private forestry, his proposal at this time would be susceptible to fair appraisal and constructive discussion.

As his official pronouncement now stands, however, it is difficult to see how it can do more than precipitate re-thrashing of old straw and petty quarreling over questionable statistics, of which forest conservation already has had enough.

RED OAK

***Quercus borealis*, Michaux**

By G. H. COLLINGWOOD

THE OAKS are naturally divided into two groups—white oaks and black oaks. Of the latter red oak is easily the largest, most widely distributed, and commercially most important.

Louis Boeglin

The broad, symmetrical crown of dark green foliage and the thick, short trunk combine grace and strength in the Red Oak

The broad symmetrically spreading crown of dense dark green foliage is a conspicuous part of the landscape throughout the entire northeast — as far west as central Minnesota, southern Wisconsin, Iowa and Arkansas, and south into northern Louisiana, Mississippi, Tennessee, and northern Georgia. The trunk of open grown trees often separates at fifteen or twenty feet from the ground into several stout branches. In the forests, the trunk assumes greater length and carries a narrow, round-topped crown.

Some trees in the Ohio Valley and the mountains of West Virginia, Kentucky, Tennessee, and North Carolina reach 150 feet in height and six feet in diameter, but more ordinarily it is seventy to ninety feet high and two to three and a half feet in diameter.

This description combines the two more important and frequently confused red oaks of the north—*Quercus borealis* and the more limited *Quercus borealis maxima*. *Borealis*, meaning northern, refers to the range of the species, while *maxima*, or largest, distinguishes this particular variety of oak, whose tree as well as acorn are the biggest of all the black oak group. *Quercus* is an ancient Latin name, probably of Celtic origin, meaning "beautiful tree."

The simple, alternate leaves have five to eleven unequal bristle-tipped lobes tapering from broad bases. They are five to nine inches long, four to six broad, dark green above and paler green beneath. The stout stem is one and a half to three inches long. Appearing late in

Louis Boeglin

The trunk of open grown trees is relatively short, dividing into several stout branches which grow longer with increasing age

spring, in autumn they turn deep red or orange, to hang on until late fall or winter.

Flowers of both sexes appear on different parts of the same trees in May or June with the unfolding leaves, when the long hairy staminate catkins seem to veil the entire crown. The less conspicuous, greenish pistillate blooms develop into single or pairs of short-stalked acorns. They are fertilized by wind-borne pollen from the staminate catkins of the neighboring trees. Characteristic of all the black oak group, these take two years to mature into broadly oblong, reddish brown acorns, an inch or more long with a diameter only a little less. Each acorn rests in a flat saucer shaped cup whose narrow border is covered with small closely fitting scales. Heavy crops are produced at intervals of two to four years, but they are so bitter that even squirrels will not eat them. A high percentage of them can be expected to germinate in the spring following the acorn crop.

The dark gray to reddish brown bark of mature trees is a half to three-quarters of an inch thick, and has a light reddish or flesh colored inner bark.

The strong close-grained wood is light reddish brown in color, with a thin layer of lighter colored sapwood. A cubic foot weighs about forty-five pounds when air dry, being not only lighter but less strong than white oak. It is, however, used for many of the same purposes, including general construction, flooring, interior finish, cheap furniture, railroad ties, posts, poles, and fuel.

Red oak reproduces itself by stump sprouts or coppice, as well as from seeds. It grows in company with other oaks, sugar maples, elm, white pine, and the hickories and is the most rapid growing of all the oaks. It is suited to porous, sandy or gravelly clay soils whose drainage is good, but will not prosper in regions whose atmosphere lacks considerable natural humidity. With no serious insect enemies or fungus diseases, red oak lends itself to a variety of ornamental and landscape uses.

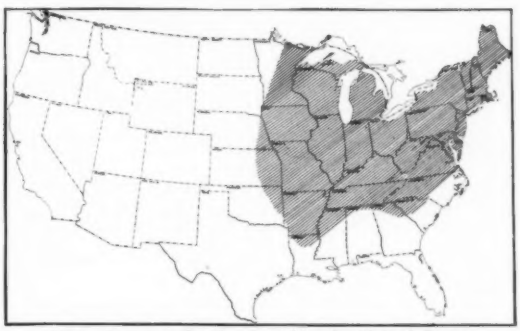
George Baetzhold

Slender, pendulous catkins of pollen bearing flowers are borne late in the spring along with the unfolding leavos

The dark gray to reddish brown bark is broken into broad, flat topped ridges

Ernest Crandall

The dark green leaves are five to nine inches long, with unequal bristle-tipped lobes, while the shallow-cupped, reddish brown acorns are broadly ovate



Natural range of red oak within the United States

BOBSLEDDING IN THE ADIRONDACKS

(*Continued from page* 60)

the present, the only one of international specifications on this continent. It was designed by Stanislaus Zentzytski of Germany, who incorporated into it all the best features of European runs, and it was built at a cost of approximately a quarter of a million dollars.

It is 2,350 meters long, has an average drop of ten per cent and has twenty-six curves, seven of which are major ones, including the four hairpin curves. Zig-Zag is shaped like the letter "S."

Dry masonry holds the high curves in place. Shady and Whiteface Curves are banked twenty-eight feet high and the sleds frequently climb close to the rim. To ice the run, water is pumped up the mountain through 8,000 feet of pipeline. A mortar of snow and water several inches thick is placed on the curves to form glare ice. Hard snow forms the straightaways. A crew of about thirty men maintains the run in condition.

During operations the course is constantly patrolled. Seven telephone booths located at strategic points insure a "clear track" before the sleds start their descent. If a bob upsets, the slide is closed until the track is clear again.

The sleds were designed by Dr. Godfrey Dewey of Lake Placid especially for the Mt. Van Hoevenberg run. They are carefully engineered, are made of steel and wood, have a sawtooth brake at the rear and are controlled by a steering wheel like that of an automobile. The four-man sleds are almost twelve feet long, are ten and one-half inches above the ground, weigh 485 pounds and cost approximately $600. About forty sleds are in use each year, both of the two- and four-man type, although the former are used only for racing.

During races the sleds are timed to the hundredth of a second by means of an electric apparatus. A special telephone circuit connects the top with the bottom of the run and from the moment the sleds cross the line at the start until they break the cord and cut the contact at the finish they are clocked to a nice degree of accuracy. Stop watches are also used to guard against default of the electric timer.

The Mt. Van Hoevenberg bobrun was opened on Christmas Day in 1930 and has been in operation three months each year until last winter, when there was practically no snow in the whole or northeastern United States. The run was conditioned several times but the ice melted time and again. By the first of March, when the run is usually closed, a heavy snow fall came as if in answer to the prayer of one of the large movie companies. The run was iced again and the bobsledding scenes of a popular wintersports picture were filmed.

For a view of the run as it looks to the rider a camera was lashed to the front of a sled. "Hitting Whiteface Curve at sixty has more snap than a power dive," said the cameraman, who had used the same equipment in airplane power dives of four thousand feet.

ANNUAL MEETING
MAY 5, 6, AND 7

Dates for the 63d Annual Meeting of The American Forestry Association, which will be held in the historic Tidewater region of Virginia, have been announced as May 5, 6 and 7—Thursday, Friday and Saturday. Headquarters for the meeting, as previously announced, will be the Chamberlin Hotel, at Old Point Comfort.

Plan now to attend, to visit one of the most historic regions in the nation — Williamsburg, Jamestown, Yorktown and other old and fascinating places—at the most beautiful time of the year. Direct by boat from New York, Baltimore and Washington; Chesapeake and Ohio trains direct to hotel; Norfolk and Western trains to Norfolk. Or motor over splendid roads.

An interesting program, combining unusual field trips with constructive meetings at the hotel, is being arranged. Make reservations now by writing the Association.

TREES AND THEIR USES—No. 31—RED OAK

SILCOX ADVOCATES PUBLIC REGULATION OF FOREST OWNERS

Public regulation of private owners of forest land is recommended by F. A. Silcox, Chief of the United States Forest Service, in his annual report issued early in January. Declaring that private ownership holds the key to our forest situation and that "with minor exceptions forest exploitation continues there," Mr. Silcox offers the following three point remedial program:

"1. Public ownership and management have established conservation on the publicly owned National Forests. In thirty-eight states, they help protect watersheds and feed livestock and wildlife. They afford recreation to more than thirty million people each year and help support nearly a million. Ratio of private to public ownership is now more than two to one. In general, acreage in public ownership should be the greater.

"2. Public cooperation with private owners.—State cooperation has been outstanding. Federal appropriations plus Civilian Conservation Corps work already total eighty-two and one-half million dollars. Public obligations and responsibilities are recognized through coordinated state and federal action in research and such things as protection from fire, insects, and diseases. This should be continued. With safeguards to insure adequate participation by private owners, it should be extended.

"3. Public regulation—as a margin of sovereignty over private forest lands—is also essential. It will protect broad, vital public interests. Private owners who recognize social obligations inherent in forest-land management will also be protected, by such regulation, from owners who otherwise might continue ruthless exploitation."

In support of his public regulation views, the Chief Forester, after pointing out that human welfare is a fundamental objective of conservation and dependent on the wise use of natural resources, declares: "Post-mortems will not, of themselves, prevent wrecked forest lands, stranded communities, eroded farms, flooded cities. For the national good, positive measures are necessary. Except in individual cases—and they are pitifully few — nowhere in the world has purely voluntary action succeeded in establishing sustained yield forest management, with security for dependent communities. Instead, public regulation of private forest lands has always been necessary. It protects vital public interests. It also protects private owners who recognize social obligations inherent in forest-land management from those who might otherwise continue ruthless exploitation."

Along with public ownership, Mr. Silcox advocates a large expansion in the public ownership of forest lands which he declares is essential to a sound national program of forest and human conservation. The present ratio of private to public ownership is now two to one. He asserts that acreage in public ownership should be greater than in private.

As a mirror with which to reflect apparently the need for public regulation, the Chief Forester presents a cryptic summary of statistics based upon the Copeland report of five years ago and bearing upon the status of private and public lands. He discounts the economy of scarcity with respect to forests by saying that it is unsafe but expresses fear that recent developments in the pulpwood industry in the South will, unless better woods practices are followed by private operators, bring that region up short in respect to future forest crops.

"Pulp representatives," he states, "have bought timber rights from many farmers. Certain of these rights cover forest lands said to bear ten to twenty cords per acre, with some stands growing at the rate of a cord per acre per year. Assuming a purchase price of only three dollars an acre, with a long term of years in which to operate, and contracts that call for cutting all timber — without leaving a basis for future crops—the stage is set on such lands for reexploitation. And if such a practice continues, the land, the farmer, and the whole social and economic set-up must inevitably suffer. The South stands now at the crossroads."

Warning, however, that care should be exercised before applying public regulation to private forest lands, the Forester said, "We should establish such things as local representation and appeals and so adapt them to the institutions and traditions of our country that they will be entirely within the pattern of democracy."

Data used by the Forester to emphasize the need of public regulation brought quick response from representatives of private ownership. John Woods, Forester for the National Lumber Manufacturers Association, charged the Forester with dealing in half-truths and in making statements "in which the range of accuracy is even less." A fuller statement of his and other comments on the Forester's views is given below on this page.

Reporting on the status and operation of the National Forests during the past year, Mr. Silcox stated that the net area of these reservations is now 172,652,000 acres. Acquisition under the Weeks Act of June 30, 1937, has increased National Forest holdings by some 16,000,000 acres. Most of this addition has been in states east of the Mississippi Valley. There are, he states, some 125 to some 150 million acres that should yet be brought under public ownership because they are so badly depleted and so unattractive to private enterprise that management cannot be safely left to private ownership.

In respect to forest fires during the past year, the Forester stated that the burned area on National Forests was limited to 280,000 acres, or considerably less than the previous five year average. He reported that state and private lands brought under organized fire protection last year increased 9,000,000 acres.

Receipts from the sale of timber from the National Forests were reported as totaling $2,849,000, an increase of twenty-six per cent over 1936, while the National Forest area reforested by planting was 82,000 acres greater than that of any previous year. In addition, 36,000,000 trees were distributed under the provisions of the Clarke-McNary Act through forty cooperating States and two Territories. Tree planting on farms increased thirty per cent over the previous year. Stock grazed on the National Forests totaled approximately 7,000,000 animals, of which 1,282,000 were cattle, 28,268 horses, 5,636,000 sheep, and 8,000 goats.

The National Forests were used in 1936 by 30,000,000 people seeking recreation.

PUBLIC REGULATION OF FOREST INDUSTRY CHALLENGED

Public regulation of the woods practices of the forest industry as officially promulgated by the Chief of the Forest Service, F. A. Silcox, in his annual report released the first of the year, drew quick fire from John B. Woods, Forester of the National Lumber Manufacturers Association, and S. J. Hall, President of Forest Managers, Inc., a forest engineering company located at Jacksonville, Florida. Both men challenged the premise upon which the Forester argues the need of public regulation and take him to task for using supporting material and statistics which they allege are not only out of date but out of line with recent information gathered by the Forester's own organization.

In a statement issued from the Washington office of the National Lumber Manufacturers Association, Mr. Woods said, "To support his conclusions the Forester points to the drain upon our forests during the period 1925 to 1929. . . . There are far more significant figures available for later years, down to and including 1936; but they tell a different story, and tend to weaken the evidence supporting what appear to be among the Forester's most cherished convictions. It is generally known, of course, that since 1930, yearly growth of our forests has equalled or exceeded in wood volume the total annual cutting drain. * * *

"Data selected to bolster what are evidently pre-determined conclusions are so presented as to glorify public ownership and public administration while discrediting private enterprise. There is no intimation that many of the obvious shortcomings of private forest management

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grow directly out of our continuing careless national 'code of outdoor morals' and the apparently growing public disregard of ordinary property rights. These conditions of course discourage long-time investments in forestry, and few will doubt that important current movements which have aggravated these conditions, if not fostered, at least have not been retarded, or even adequately controlled, by the National Government.

Declaring that the foreword of the Forester's report, "which evidently is intended as a key to the Forester's message, is studded with half-truths," Mr. Woods charged that "it contains a few statements in which the range of accuracy is even less. It is somewhat unique as an ex parte background picture of Uncle Sam's forest establishment and of private misconduct, before which Forest Service administration and public ownership generally are made to shine."

Mr. Woods singled out the Forester's statement that all but five per cent of public lands are now receiving adequate protection from fire while only fifty-five per cent of private lands are protected. "One is moved to inquire," Mr. Woods asked, "why even five per cent of public lands should be without adequate protection. Why, for example, the federal Public Domain, and much of the newly acquired Resettlement lands, and some of the National Parks, should be inadequately protected. The answer, of course, is well known; and while it does not directly reflect discredit upon the Forest Service, it does weaken the legend of government forestry infallibility."

The Forester, Mr. Woods said, "fails to recognize the near-revolutionary change in owner attitude toward forest management which has occurred within the past decade.

"Sustained yield forestry," Mr. Woods continued, "is coming in the private field as rapidly as economic conditions permit. It is being preceded by adoption of more conservative logging practices, and closer attention to the necessity of protecting and reforesting lands from fire. By giving virtually no recognition or encouragement to such efforts, the Chief Forester has ignored an opportunity to push ahead the private forestry which he urges.

"It is not a fact that private forestry has failed, or that it can succeed only through federal regulation. Private forestry is on the march today. Informed private forest owners are doubtful of the efficacy of federal efforts to regulate forest management upon private lands. Private ownership and industry would welcome federal efforts to do first things first, beginning with adequate cooperation in forest protection, research and diligent effort toward needed reforms in forest taxation.

Mr. Hall's comments on the Forester's views were given in a letter to the editor of the *Southern Lumber Journal*. He implied that the Forester has built up his case for public regulation by personal observations.

"Fortunately," said Mr. Hall, "we do not have to rely on personal observations to determine the situation. The Forest Service has recently completed a forest survey of the South and results are now available for the naval stores region. This report was carefully made by experienced men and we no longer need to guess about the facts of timber stand, growth, commodity drain, mortality and increment in each forest region." Using the latest figures as shown by the survey, Mr. Hall said that he failed to find any very serious state of affairs, "certainly not one requiring government intervention to regulate the management of privately owned lands. The table shows that there is plenty of room for improvement but it also shows that improvement could easily be carried too far. If all of the lands were to be put under intensive forest management, pulpwood and small timber products would become practically valueless within fifteen years.

Referring to the Forester's published statement "that naval stores production is already facing curtailment because of past over-exploitation," Mr. Hall said that this does not square with the report of his subordinate, I. F. Eldredge, who had charge of the forest survey in the South. He quoted Mr. Eldredge as saying: "Even though the timber supply situation and outlook is favorable for increased future production, there is at this time no apparent reason to anticipate any such development. So long as the world's consumption of naval stores remains where it has been for the past ten years the naval stores industry would be foolhardy to increase its production."

Mr. Hall asserted that since the foregoing report was issued, the situation has not changed except that turpentine now sells for twenty-seven cents a gallon whereas the price at the time of the report was thirty-seven and one-half cents.

"Mr. Silcox intimates," continued Mr. Hall, "that forest management on private lands is not getting started off in a large enough way to take care of the prospective demands for forest products. Here again he appears to be out of touch with his field representatives." In support of this assertion, Mr. Hall cites information from the Southern Forest Experiment Station of the Forest Service which he says shows that the percentage of protected land in the South has been increasing by leaps and bounds.

Concluding, he said: "I predict that the day will come when government regulation will be demanded by some timberland owners to prevent over-production. Certainly it is not needed to stimulate production."

In answering these criticisms, Mr. Silcox emphasized that his major premise for public regulation is based on the fact that for the continental United States as a whole the best four-fifths of our commercial forest land, the best three-fifths of our commercial sawtimber, and some nine-tenths of all potential forest growth is now in private ownership and that "with minor exceptions, neither in this country nor elsewhere—so far as I can find—has private initiative succeeded, of itself, in establishing sustained yield forest management on privately owned forest lands generally. Instead, public regulation has been necessary."

He asserted that despite what Mr. Woods says, the Copeland report data has never yet been discredited, although admittedly it is subject to modifications in some particulars. "The general picture painted by data used in my report," he said, "is still essentially correct and that data is still the most complete and reliable with respect to our forest situation and the forest problem nationally."

Regional data from the forest survey is still incomplete, Mr. Silcox said, and furthermore regional survey data, while significant, are often fallacious as applied to the nation as a whole. There is no more justification, he declared, for attempting to apply regional data to the country as a whole, or for trying to formulate guiding principles and policies for the nation from it, than there is in applying regional forest survey data to lesser and more local areas.

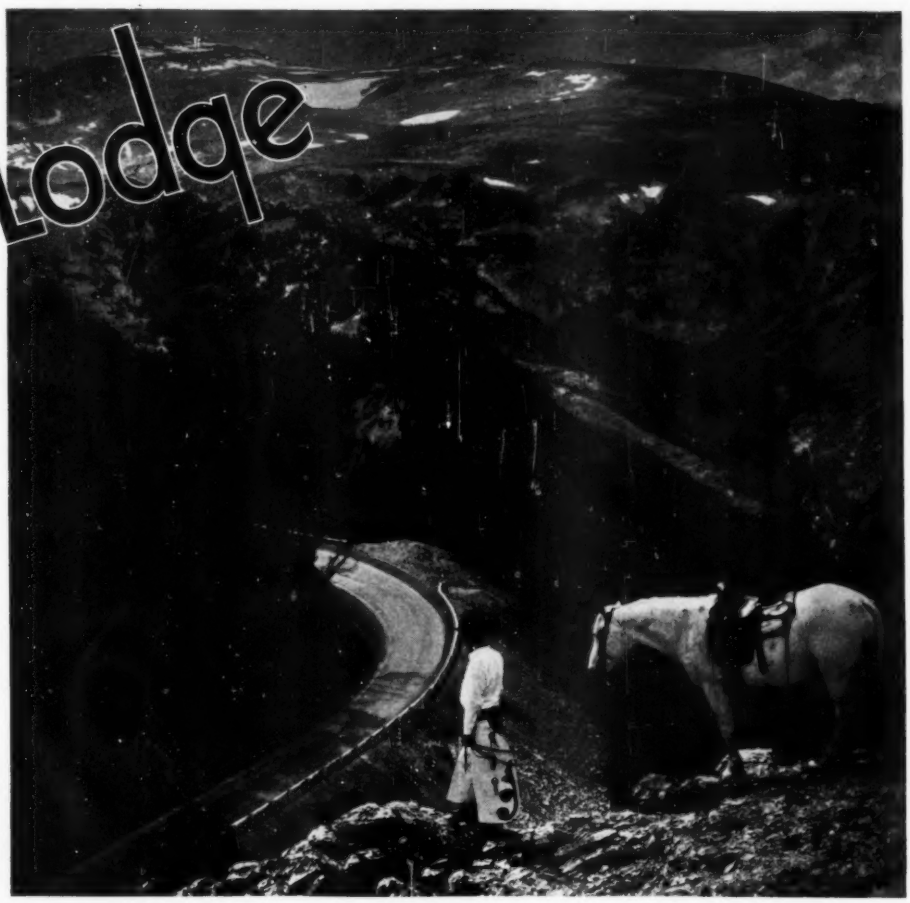
"If fuel wood is excluded," said Mr. Silcox, "it is possible that growth equals that 'cutting' drain for 1930-36 to which Mr. Woods refers. What of it? Why try to draw a pretty picture on such a basis? I'm talking resource management. For that, fuel wood drain and such losses as those from fire, disease, insects, cannot be evaded if growth and depletion are to be balanced. And balance of growth over drain for large areas is by no means the entire answer. Every time an acre is taken out of sustained yield production, it throws added drain on some other acre."

Admitting that "with public cooperation more forest lands now receive better fire protection and that more private owners now leave more cut-over lands in a more productive condition," Mr. Silcox declares this does not constitute sustained yield forest management as evidenced by such communities as Bend and Lakeview, Oregon, which are "now aggressively searching for legislative and administrative action which will assure sustained yield forest management in order to prolong their existence."

As regards the question of taxation, Mr. Silcox said that private owners generally are particularly vulnerable. "Stability of income appeals to county commissioners, yet they are antagonistic toward reduction of taxes on forest lands generally. Their attitude is very frankly one of taking while the taking is good, on the theory that if they do not take all they can get now, the chances are there will be little or nothing they can get a few years from now. Yet many commissioners freely admit that it they could be convinced that forest owners and operators are sincere in their efforts to practice sustained yield forest management, the commissioners would really try to forego relatively high or transitory returns in favor of long-time but stable incomes."

(*Continuing on page* 95)

Red Lodge



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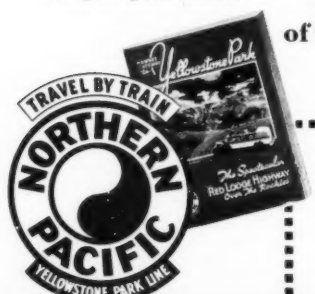

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AROUND THE STATES

COLORADO-BIG THOMPSON PROJECT APPROVED

Construction on the $31,702,772 Colorado-Big Thompson transmountain diversion project of the Bureau of Reclamation to carry Colorado River water in a nine foot tunnel under the Rocky Mountain National Park was approved on December 28, 1937, by President Roosevelt upon assurance by Secretary of the Interior Harold L. Ickes that the project was feasible. Work may be started this spring with $900,000 now available. Completion of the project will be dependent upon allotments from the reclamation fund and direct appropriations by future Congresses.

The plan, which will divert 300,000 to 320,000 acre feet of water annually from a reservoir on the Colorado River side of the Continental Divide through a 13.1 mile tunnel under Rocky Mountain National Park to the drainage basin of the South Platt River, was opposed by The American Forestry Association and other national organizations on the ground that the use of the Rocky Mountain National Park as the site or right-of-way of a tunnel for the diversion of irrigation water and the development of hydro-electric power for sale is a violation of the foundation principles of the National Park System.

In announcing approval of the project Secretary Ickes voiced sympathy with its opponents and outlined an inter-bureau agreement between the Bureau of Reclamation and the National Park Service whereby the Park and its immediate environs will be protected against any form of invasion. This plan provides that no surface work will be performed in the existing park area, or within the adjoining areas approved for addition by the Park Service. In addition three second feet of water and all necessary electric power will be furnished the park without charge. Further extension of the Rocky Mountain National Park is contemplated, together with the acquisition of privately owned lands within the existing park in legislation which may be introduced early in the present session of Congress.

ASSOCIATION ISSUES BOOKLET ON DUTCH ELM DISEASE

The Dutch elm disease and the fight which is being made against it to save the more than a billion elms in the United States is described in a thirty-two page illustrated booklet entitled, "The American Elm," just published by The American Forestry Association. The booklet sets forth graphically the origin, development and progress of the disease in this country and the campaign now being waged for its eradication. The purpose of the booklet is to give the public the true facts about the disease and to arouse greater public support of the efforts being made by federal and state agencies to eradicate the disease before it gets out of control. It is being distributed free of charge.

In releasing the booklet, Ovid Butler, Secretary of the Association, said:

"A survey of the Dutch elm disease situation at the close of the present field season shows definitely that Federal and cooperating State agencies can win the fight against the disease.

"Although not generally recognized or appreciated, President Roosevelt has been a major factor in the encouraging progress shown. When the disease was first discovered in this country, lack of regular Federal funds and refusal by Congress to make adequate appropriations to stamp out the disease in its incipiency gave a dark outlook to the prospect of saving the American elm. European experience had already demonstrated that the disease, once out of control, would cause certain and rapid death to all elms.

IRA N. GABRIELSON
Chief, United States Biological Survey

"President Roosevelt, however, later interesting himself in the situation, saw to it that sufficient emergency relief funds were allocated to make possible an effective campaign of control and eradication. Had he not, with timely foresight, moved in defense of the threatened elms of the country, it is fair to say that the disease now might be beyond control, and the millions of shade and ornamental elms throughout the country doomed to extinction."

Mr. Butler warned against public complacency, however, in respect to the disease, and in assuming that, because progress is being made, the elms are out of danger.

"The present outlook is that the disease can be beaten," he said, "but only if the present campaign of eradication is continued a few years longer. It would be the height of folly to abandon the fight when victory is in sight. It would mean not only that America's elms would be lost, but also that the $11,500,000 already spent to combat the disease would have been spent in vain.

"Relief funds have constituted over ninety per cent of these expenditures, and the project, in point of preserving national tree wealth and beauty, ranks as one of the finest and most worthwhile undertakings in the Federal Government's relief program."

Funds so far allotted have been expended by both Federal and State agencies in work which includes scouting for diseased trees—by skilled observers afoot, in cars, and in four auto-gyro planes utilized in locations almost inaccessible otherwise; the taking of samples from suspected trees; scientific laboratory culture to determine presence or absence of the fatal fungus; and later eradication by felling and burning of trees, or rendering them innocuous by a chemical process called silvicide.

As a result of these activities, statistics in the bulletin show that there were 1,562 fewer cases of the disease discovered this year as compared with 1936, and no appreciable extension of the disease beyond the infected zones. It is thus the best year, in point of view of occurrence of infection, since 1933, when the first comprehensive eradication efforts were begun.

GABRIELSON STRESSES WILDLIFE POSSIBILITIES ON FARMS

Wildlife management as a supplementary farm enterprise was stressed by Ira N. Gabrielson, Chief of the Biological Survey in his annual report for the year ending June 30, 1937. The details of carrying out the broad national wildlife program were made possible by recent legislation which laid special emphasis upon the results of research in waterfowl management and the administration of bird and mammal refuges. Continuing as one of the chief activities was the purchase and development of refuges. For this latter work, more than $20,000,000 has been available during the past three years.

Provided hunting is given necessary regulation, Mr. Gabrielson indicates that wildlife increase depends largely on the land provided for wildlife, and on the way in which all land areas are managed.

The Biological Survey purchased more than 600,000 acres for refuge lands during the fiscal year. Thus far, the Migratory Bird Conservation Act has made possible the acquisition by purchase, gift, or otherwise of 2,141,565 acres in thirty-two states and Alaska. Of this total, title has been acquired to 883,632 acres, title is pending on 525,457 acres, and

996,864 were acquired other than by purchase. On June 30, 1937, there were over 7,000,000 acres in the 216 federal refuges in the United States, and over 11,500,000 acres in fifteen refuges in Alaska, Hawaii, and Puerto Rico.

In restoring and developing these refuges, twenty-four CCC camps, comprising approximately 4,000 men were engaged during the past year in wildlife conservation work, in improving breeding grounds, planting, and transplanting along migration routes.

Federal appropriations of $594,531 together with about $1,125,800 of emergency funds were used in cooperation with state funds of $382,673 and $903,919 contributed by counties, livestock associations, and others to control prairie dogs, ground squirrels, jack rabbits, and other rodents on 34,652,418 acres, and to kill a total of 89,289 wolves, bobcats, bears, and mountain lions.

IOWA DEDICATES FOREST TO MRS. WHITLEY

Mrs. Francis E. Whitley

Mrs. Francis E. Whitley, of Webster City, Iowa, widely known in conservation fields, died at her home on December 30 after a long illness. Mrs. Whitley lived, however, to see her work in conservation fittingly memorialized by her State and by the Iowa Federation of Women's Clubs, of which she had been president.

Among the low hills of central Iowa is Lake Ahquabi—meaning "a place of rest." Here last fall the State of Iowa set apart some 560 acres of rolling land and dedicated it to Mrs. Whitley as the "Whitley Forest." Here also the Iowa Federation of Women's Clubs, cooperating with the Iowa State Planning Board, planted some 80,000 seedlings of oak, elm, ash, walnut and basswood and made plans to plant another 100,000 trees next spring. At the entrance to the forest, the Women's Clubs and the Conservation Commission of the State will place a great boulder bearing a bronze tablet with the name "Whitley Forest."

As president of the Iowa Federation of Women's Clubs, and later Chairman of Conservation for the National Federation, Mrs. Whitley for more than twenty years made conservation and the preservation of natural beauty throughout the land her chief interest. Locally and nationally her influence was felt in virtually every field of conservation. She served not only as a vice-president of The American Forestry Association but was active in the Iowa Izaak Walton League, the Garden Club of America and other public-spirited groups.

PARK IDEALS HAVE BEEN FORGOTTEN

Open Letter to Secretary Ickes Charges Misdirection of National Park Service

In an open letter to Secretary of the Interior Harold L. Ickes last month, James A. Foote, speaking for the National Parks Association, charges the National Park Service with misdirected expansion, conflicting administration, forgotten ideals, and declining esprit de corps. Mr. Foote's letter, it was understood, was written following the summer and fall spent in visiting National Parks throughout the country and familiarizing himself with conditions within the Service. He calls upon the Secretary to take immediate steps to correct the existing situation and assure the future of America's National Parks system.

"The National Park Service has been expanding rapidly in recent years," writes Mr. Foote, "so rapidly that the original precepts and ideals upon which the Service was founded appear to have become lost or forgotten. State parks, recreational areas, national parks and primeval national parks have been shuffled and jumbled until today a confused American public scarcely knows which is which.

"Within the field of National Park administration, as you know, two widely divergent policies exist. One is reflected in the state park group which favors a program of vast expansion for the Park Service. The other is expressed by a handful of old-line Service men, loyal to traditions and original standards and trained for many years in the administration of the primeval national parks.

"So, first, let us look at the Service men, the group consisting for the most part of the men in the field—regional officers, superintendents, and their immediate personnel. They are working under serious handicaps. Yellowstone provides a clear-cut example, although similar situations prevail in several other primeval parks. Here, several years ago, the chief ranger of the park was furloughed out on state park work. As a result of the transfer he was given a considerable increase in salary. Yet his position in Yellowstone and his civil service status is still held open pending his very doubtful return. Because his old position is still open, the deserved advancement of those he left behind has not been forthcoming. This has forestalled a natural stepping up all down the line. Those men who have worked loyally for years feel they deserve promotion. Yet nothing has been done in their behalf. As the months pass into years, the ideal of loyalty and service is fast turning into a feeling of discouragement and bitterness. Lack of morale is evident where a few years ago the spirit of service prevailed. Request after request for announcement of a definite policy pertinent to the situation has been ignored.

"Another cause for deep concern is the failure on the part of the Washington office of the Service to issue instructions or policies with respect to the administration of the primeval parks. Consequently, the superintendents find themselves left out on a limb whenever a situation arises that only general policy can determine. . . .

"There is the case of Glacier, which is interesting if only to illustrate that what should be done has not been done. Glacier is the 'fire' park of the System. Forty-five per cent of its acreage is blind to fire observatories and regular fire patrol. In 1936 over two hundred fires were started. The majority of those were the result of lightning that hit in some remote section and smouldered for days before a fateful tell-tale wisp of smoke could be seen by the observer. Realizing, therefore, the need for additional look-outs and having on hand sufficient funds to build three, the park staff sent plans for these to Washington in the spring of 1936. The plans were held up all through that summer and then, after the Heavens Peak fire in August of that year had claimed two thousand and more acres, the plans were returned to the park staff. Instead of three, the revised plans called for only one look-out, and that one at a cost considerably greater than the total cost of the three that were originally requested. No funds were left available to man it. . . . It is high time, then, that the Park Service got busy on a few things like this instead of spending badly needed money on reconnoitering second-rate areas and playing in the sand along the Virginia seashore.

"Finally, there is the matter of over-development within the primeval parks. Excessive and unnecessary road building has played havoc in Yellowstone, Rainier and Yosemite, to mention a few."

In his reply to Mr. Foote, Secretary Ickes told him his letter "appears to be based on misinformation and misconceptions." The Secretary further assured him that there are no divergent policies in the National Park Service and that key positions within the Service are filled with permanent park men who have had long experience and training in National Park work. "It is these men," said the Secretary, "who are so effectively influencing the development of the state park movement."

The Secretary explained the Glacier National Park situation by saying that the Service has refused to permit the park "to be crisscrossed with truck and fire trails and locate fire lookout stations on the top of every peak" because it would largely destroy the primeval character of the park. In concluding his reply, the Secretary said "Your discussion of new park areas indicates that you do not understand the administration of the National Park System. New park and monument areas have been considered only by men long trained in Park Service work."

SCIENCE AND EQUIPMENT

INDIAN PORTABLE FIRE PUMPS

D. B. Smith & Co. have available to foresters and lumbermen prices and full information on the use of Indian Fire Pumps. These pumps, carried on the back of the operator by means of shoulder straps, have a form-fitting tank of five-gallon capacity that is carried comfortably. Used for many years by forest rangers, they are specially recommended to lumber companies as safeguards against the spread of fire. Working the handle back and forth produces a powerful fifty-foot fire stream. This feature and the portability of the unit make it possible to reach any fire center. Clear water is used. Tanks are built to give a constant circulation of air between the tank and the carrier's back, thus protecting him from cold water and moisture.

NO. "99" MOTOR GRADER

Announcement of a new model Motor Grader by an established maker is always interesting news, but when a new model extends its capacity for work from the "maintainer class" to the "construction class," that is indeed news. These things, and more, are claimed for the new "99" Motor Grader just announced by the Austin-Western Road Machinery Co.

The outstanding features of this machine are: power applied to all wheels, and steering through the front and rear wheels whereby traction can be controlled to increase blade output. The conventional idling front wheels are not used, but in their place are power-driven front wheels which are the same diameter as the rear drivers. The machine is equipped with but four wheels, but each of them drives and steers. Either single or dual tires may be used. Every adjustment on the machine is controlled by hydraulics, including front and rear steering, extending or retracting the working blade without disturbing position of circle or "floor plane" of road, raising the blade and scarifier, and any other required adjustment.

The "99" is furnished with either gas or Diesel motors, as desired, and optional tire equipment is available. The standard moldboard is 13 feet long. The extra traction and steerability of the "99" enable it to handle a blade of this length on the severest work. The scarifier folds up out of the way to avoid the windrow or load carried by blade. The machine can be fitted with special attachments such as a scarifier, bulldozer, backsloper, snow plow, or wings.

PORTABLE ELECTRIC HANDSAW

A new electric handsaw has just been placed on the market by Skilsaw, Inc., manufacturer of portable electric tools. The machine is eighteen inches long, weighs fifteen pounds, and is equipped with a seven-inch blade. The blade has a free speed of 3,600 r.p.m., and is protected by an automatic spring-operated telescopic guard that rotates on bearings. It cuts two and three-eighths inches in wood, cross-cuts two-inch rough lumber, and bevel-cuts two-inch dressed lumber at forty-five degrees. The tool is designed to operate with minimum strain on the hand of the user. The frame is made of special die-cast aluminum alloy, shafts are ball-bearing mounted, and a blower in the upper guard keeps the line of cut free from sawdust.

HORMONE SPRAYS TO SPEED FOREST GROWTH

Experiments which may lead to easier propagation and quicker growth of forest trees and other plants were described recently by Dr. N. H. Grace, plant hormone research worker of the National Research Council, Ottawa, Canada. Application of plant hormones as dust, he said, gave the plant a quick growth get-away and early, dense root development. Further, he declared, extremely small quantities of the hormones were applied by methods used with the usual seed disinfectants. Laboratory research on dusting methods indicates the possibility some day of dusting large areas of growing plants from aircraft, much as forests and fields are now dusted with insecticides.

FORESTRY IN CONGRESS

By G. H. COLLINGWOOD

The Senate has marked time on government reorganization as proposed in the Byrnes bill, S. 2970, while awaiting action on the anti-lynching bill, but as this goes to press the plans seem to be that Senator Byrnes may get his bill up for debate before the end of January.

Meanwhile, some indication of what is in the President's mind was revealed in his address at the opening of the Third Session of the Seventy-Fifth Congress on January 6, when he referred to "the production of timber, minerals, and other natural resources" as part of agriculture.

Three days later, accompanied with another message from the President, the Budget for the fiscal year beginning July 1, 1938, was presented to Congress. Reductions in recommended appropriations to the Forest Service, Soil Conservation Service, and Bureau of Fisheries were not as severe as had been feared, while the National Park Service, the Division of Grazing, and the Biological Survey are in line for increases.

The Forest Service estimate of $18,400,407 is $491,775 less than the $18,892,182 appropriated for the current year. The largest reduction is $2,000,000 from the current appropriation for land acquisition, leaving $1,000,000 in the coming year's estimate.

Nothing is provided for the acquisition of State Forests under the Fulmer Act, the item for forest fire cooperation under the Clarke-McNary Act remains at $1,655,007, and all activities authorized under the McNary-McSweeney Act for forest research continue without change.

Passage of the Norris-Doxey Farm Forestry Act of May 18, 1937, taken in conjunction with the Clarke-McNary Act of 1924, is responsible for an increase of $1,229,421 to provide $1,300,000 for the cooperative distribution of forest planting stock, and an additional $143,162 is set up to give $200,000 for use with land grant colleges in furtherance of farm forestry extension work. The work contemplated in the larger appropriation includes that originally described as the Plains Shelterbelt Project and now carried forward as Prairie States Forestry Project. A new and additional item of $200,000 is recommended for private forestry cooperation, that advice may be given to timberland owners and wood-using industries in the application of forest management principles to private forest lands.

Control of white pine blister rust on National Forests is set for an increase of $100,000 to make $504,879, while the Bureau of Entomology and Plant Quarantine's responsibility for its control is reduced by $20,000 to $280,000. Dutch elm disease eradication is cut by $82,371 to $378,489 with the evident intention of continuing the bulk of this work, as in the past, with emergency relief allotments.

An estimate of $1,000,000 for carrying into effect the program of Federal Aid in Wildlife Restoration under the Act of September 2, 1937, to be derived from taxes on the sale of arms and ammunition, increases the Budget for the Biological Survey to $3,608,240. The other major activities continue without change.

The reduction of $865,780 to the Soil Conservation Service, giving that bureau $23,525,000, reduces land use investigations by $30,179 to $1,510,601, and demonstration work by $712,651 to $21,462,349.

An increase of $281,305 would give the National Park Service $3,720,830 for the administration of National Parks and Monuments.

A cut of $167,000 which would give the Bureau of Fisheries $1,870,000 is largely accounted for by reducing the establishment and development of fish cultural stations, but $13,500 is continued for enforcement of the black bass law.

The Independent Offices bill, H. R. 8837 led all other appropriation measures for 1938-1939 when it was reported to the House on January 6, 1938. This calls for only $226,331,000 for the CCC, or $123,331,000 less than for the current year. This contemplates reducing the number of enrolled men from $300,000 to $250,000, with about 1,200 camps instead of 1,500. Protesting this cut of thirty-five per cent, Representative Jed Johnson of Oklahoma opened attack on the floor of the House and on January 10 lost out in an effort to restore $45,000,000. Had the amendment passed, it would have saved 150 camps.

FORESTRY AND CONSERVATION HIGHLIGHTS IN THE 1939 BUDGET

	1938 *Appropriation*	*Increase*	*Decrease*	1939 *Budget Estimate*
Forest Service	$18,892,182		$491,775	$18,400,407
Dutch Elm Disease Eradication	460,860		82,371	378,489
Biological Survey	2,610,740	$997,500		3,608,240
Soil Conservation Service	24,390,780		865,780	23,525,000
National Parks Service				
National Parks Administration	3,439,525	281,305		3,720,830
Division of Grazing	800,000	100,000		900,000
Bureau of Fisheries	2,037,000		167,000	1,870,000
Civilian Conservation Corps	350,000,000		123,331,000	226,331,000

CONSERVATION CALENDAR

Important bills in Congress with action from December 11, 1937, to January 10, 1938

APPROPRIATIONS

H. J. Res. 544—MARTIN, Colorado—Making an appropriation for a survey for the transmountain diversion of water for irrigation, domestic, and industrial purposes in the State of Colorado. Introduced December 18, 1937. Referred to the Committee on Appropriations.

H. R. 8837—WOODRUM—Making appropriations for the Executive Office and sundry independent executive bureaus, boards, commissions, and offices, including the Civilian Conservation Corps and the Tennessee Valley Authority, for the fiscal year ending June 30, 1939. Introduced and reported by the Committee on Appropriations on January 6, 1938. Passed by House January 11, 1938.

GOVERNMENTAL FUNCTIONS

S. 2970—BYRNES—To provide for reorganizing agencies of the government, extending the classified civil service, establishing a General Auditing Office and a Department of Welfare, and for other purposes. Introduced August 16, 1937. Reported without amendment (Report No. 1236) by the Select Committee on Government Organization August 17, 1937. Passed over in Senate at the suggestion of Senator Vandenberg, January 5, 1938.

S. 3214—MCNARY—To amend the Civilian Conservation Corps Act to permit the Director to undertake public-road construction projects where necessary for land development. Introduced January 11, 1938. Referred to the Committee on Irrigation and Reclamation.

NATIONAL FORESTS

S. 3157—WHEELER—To empower the President of the United States to create new national forest units and make additions to existing National Forests in Montana. Introduced January 5, 1938. Referred to the Committee on Agriculture and Forestry.

S. 3208—MCNARY—To promote sustained yield forest management; to assure a continuous and ample supply of forest products; and to secure the benefits of forests in regulation of water supply, stream flow, etc. Introduced January 10, 1938, and referred to the Committee on Agriculture and Forestry.

NATIONAL PARKS

S. 3125—HARRISON—To provide for the administration and maintenance of the Natchez Trace Parkway in Mississippi, Alabama, and Tennessee by the Secretary of the Interior. Introduced December 10, 1937. Referred to the Committee on Public Lands and Surveys.

S. 3176—MCKELLAR—To authorize the acquisition of lands for the completion of the Great Smoky Mountains National Park. Introduced January 5, 1938. Referred to the Committee on Post Offices and Post Roads.

H. J. Res. 543—MARTIN, Colorado—To authorize an appropriation for the survey for the transmountain diversion of waters for irrigation, domestic and industrial purposes in Colorado. Introduced December 18, 1937. Referred to the Committee on Irrigation and Reclamation.

H. R. 8735 (H. R. 8736)—BEITER—To provide for the establishment of the Niagara Falls National Park in New York. Introduced December 16, 1937. Referred to the Committee on the Public Lands.

H. R. 8847—PIERCE—To provide for the acquisition of certain lands for and the addition thereof to the Deschutes National Forest, in the State of Oregon. Introduced January 6, 1938. Referred to the Committee on Agriculture.

TREE DISEASES AND INSECTS

H. J. Res. 556—O'CONNOR, Montana—To amend the joint resolution entitled "Joint Resolution making funds available for the control of incipient or emergency outbreaks of insect pests or plant diseases, etc." Approved April 6, 1937. Introduced January 7, 1938, and referred to the Committee on Agriculture.

ASK THE FORESTER

Forestry Questions Submitted to The American Forestry Association, 919 - 17th St., N. W., Washington, D. C., Will Be Answered in This Column. . . . A Self-Addressed Stamped Envelope Should Accompany Your Letter.

QUESTION: What are the principal "pitch pines" used in the production of turpentine in the United States?—H. C. S., New Zealand.

ANSWER: Of the thirty-seven species of pine native to the United States only long leaf pine and slash pine are of major importance in the commercial production of so-called naval stores—turpentine and rosin.

QUESTION: When was the Chinese elm introduced in the United States, and by whom?—K. L., Iowa.

ANSWER: There are two major species of the Chinese elm planted throughout this country—*Ulmus pumila* and *Ulmus parvifolia*. *Ulmus pumila* is the more widely used. The actual date of its introduction is unknown, but a specimen was found growing in the Boston Public Garden in 1902. Professor J. G. Jack of the Arnold Arboretum reports that plants were sent to the arboretum by L. Spaeth of Berlin, Germany, in November, 1900, and other shipments followed in 1902. These came in under other names, but were later identified as *U. pumila*. In September, 1905, Professor Jack mailed seedlings from Peiping to the Arboretum. In 1908 Frank N. Meyer of the United States Department of Agriculture brought over seeds from China and in 1910 Ernest H. Wilson of the Arnold Arboretum collected seed on the grounds of the Temple of Heaven at Peiping. It has grown in Europe since about 1860.

QUESTION: Which is the preferable common name for *Pinus resinosa*, red pine or Norway pine?—F. E. K., New York.

ANSWER: Red pine is the common name given preference in the Forest Service Check List, Standardized Plant Names and by most authorities.

QUESTION: How do timber experts determine the age of a standing tree?—A. C. M., New York.

ANSWER: The age of trees up to about thirty inches in diameter can be determined with reasonable accuracy by boring into the trunk with a Swedish increment borer. This is a hollow bit, so constructed as to bring out a core of wood slightly smaller than a lead pencil, on which the annual rings of most trees can be observed and counted. The borer is too short to reach the center of trees much larger than thirty inches, so that the ring counts from the outer area must be correlated or adjusted to the estimated ring count near the center. Tree analysis tables are available for many tree species which are frequently of assistance. These counts are all worked out on the known assumption that a tree growing in a temperate climate produces one ring of growth each year.

QUESTION: What is the correct spelling of the name for the Chinese maidenhair fern trees—"ginkgo" or "gingko"?—W. B. A., Indiana.

ANSWER: The preferred spelling, according to Webster's Unabridged Dictionary and the new Century Dictionary, is "ginkgo." The Japanese spelling, "gingko," is, however, acceptable.

According to the late Ernest H. Wilson in his "Aristocrats of the Trees," the name is a Japanese rendering of the Chinese name "Yin-kuo" to which they add a third syllable "tsu," the whole being Yin-kuo-tsu—meaning silver nut tree.

QUESTION: Are there many maples and how widely distributed are they?—L. D. R., Virginia.

ANSWER: There are some seventy species of maple, widely distributed over the northern hemisphere with one species extending south of the equator to the mountains of Java. Approximately one-half of the species occur in China and Japan, and only about fifteen in the United States.

QUESTION: How can one be sure of getting a holly plant which will have berries?—W. R. M., New Jersey.

ANSWER: Only by getting a plant which is known to have borne fruit. The hollies are dioecious; that is, male and female flowers are borne on separate trees, or on the female portions of occasional trees which have flowers of both sexes. Seedlings are often in the proportion of ten male to one female tree, but the sexes cannot be determined until they bloom or bear fruit. Holly plants usually begin to bear flowers after they are five to twelve years old.

QUESTION: Does forest fire protection in New York State cover private timber holdings in the Adirondack and Catskill districts, and is there any charge or assessment to the private owner for this?—C. N. P., New York.

ANSWER: The State forest fire control work as administered by the Conservation Department covers private lands as well as state lands in the Adirondacks and Catskills, without any special charge or assessment to the private owner for this service.

NEW BOOKS

HARDY CALIFORNIANS, by Lester Rowntree. Published by the Macmillan Company, New York City. 255 pages. Illustrated. Price $3.50.

In an effort to acquaint gardeners with the practicability of introducing new plant material in their gardens, Miss Rowntree has concentrated her knowledge of the less familiar native California plants in a book which she has called "Hardy Californians."

Herein she relates her observations and studies of flowers and plants found in untraveled and little-frequented places throughout the State. Her lengthy excursions have led her into desert, forest, mountain, plain, and to the sea, pursuing the secret of a plant's native environs and the treatment which will keep it flourishing under other exposures and conditions. Most of the plant material found on the Pacific Coast is generally unknown in the east, but with the help of one who knows her subject, plants growing in isolated localities of the west may be reared in eastern landscapes with low percentage of failure.

The book is written in popular style and reads like an adventure.—D. D.

THE LITTLE WOLF, by Wendell and Lucie Chapman. Published by Charles Scribner's Sons, New York City. 140 pages, illustrated. Price $2.00.

The Little Wolf is not really a little wolf at all, but a coyote. And this book is the story of his life from cubhood to when he assumes family responsibilities of his own. A fascinating account, albeit that of a marauder—a little villain, who nevertheless makes a strong appeal of his own. It is a good story for younger readers, and illustrated with the charming pictures made by the authors, who have made a name for themselves in their own particular field.—L. M. C.

MY TREE BOOK, by Antoinette Trudeen. Published by the Becky-Cardy Company, 1632 Indiana Avenue, Chicago, Illinois. Thirty-two sheets of outline drawings eight by ten and a half inches. Price 30 cents.

Teachers of nature study and parents desirous of stimulating an interest in trees will find Miss Trudeen's outline drawings of sixteen common American trees helpful in the preparation of tree or forestry notebooks. The sheets include apple, white ash, catalpa, red cedar, horse chestnut, American elm, American linden, black locust, sugar maple, white oak, white pine, plum, Lombardy poplar, sassafras, tulip tree, and black walnut.—G. H. C.

TRAIL RIDERS

Announcement will be made soon as to actual dates for the 1938 Expeditions of The American Forestry Association's "Trail Riders of the Wilderness."

As previously announced, two new expeditions will be undertaken in 1938—one in California and one for Colorado. The California party will explore the high Sierras in the beautiful Kings River country, just north of Mt. Whitney, and Death Valley, and south of Yosemite National Park. The Colorado party will explore the Maroon Bells—Snowmass Wilderness in the Holy Cross National Forest, a land of massive mountains.

All of the expeditions of 1937 will be repeated, with the exception of the spring and fall trips in the Great Smoky Mountains. Thus the Expeditions for 1938, with actual dates to be announced later, along with costs, are as follows:

Expedition No. 1—Flathead and Sun River Wilderness, Flathead and Lewis and Clark National Forests, Montana—July.

Expedition No. 2—Wind River Wilderness in the Bridger Primitive Area, Wyoming National Forest, Wyoming—July.

Expedition No. 3—Maroon Bells — Snowmass Wilderness, Holy Cross National Forest, Colorado—July.

Expedition No. 4—Gila Wilderness, Gila National Forest, New Mexico—August.

Expedition No. 5—Sawtooth Wilderness, Sawtooth National Forest, Idaho—August.

Expedition No. 6—Olympic Wilderness, Olympic National Forest and Monument, Washington—August.

Expedition No. 7—Kings River Wilderness, Inyo National Forest, California —August.

Tentative reservations may be made now.

A LOOK AT THE HAWKS

(*Continued from page* 63)

I was within a few feet of my quarry.

Like the pigeon hawk, the duck hawk is a comparatively rare bird. There is no denying the fact that he is a marauder of the first rank. Yet, while he ought to be killed, the world would be a less picturesque and romantic place without him. I do not know another bird in which the wild primeval energy of nature is so apparent. I have killed duck hawks, but could never feel very set up over having slain these superb malefactors; for, in the act of saving game, I was destroying beauty, that represented in its own way the ancient majesty of the wilderness.

Of the true hawks, there are three that are, by general consensus of opinion, distinctly harmful; that is, they do decidedly more harm than good. These renegades are the big Cooper's, the sharp-shinned, and the goshawk. In order to adjust the balance of nature so that sportsmen may continue to enjoy their ancient and honorable pastime, it would seem wise to kill any or all of these public enemies. But I think our attitude toward any known killer should always be tempered by circumstances. I mean that indiscriminate slaughter is not always to be recommended.

Any one who studies the laws of the various states will find that there is wide divergence in the matter of protection afforded various birds. At first view this fact may appear to be inconsistent; but there is sound reason for it. For a predator's food is bound to vary with the food supply available in any locality. When the grouse is found, the goshawk is a sinister scourge. Where the quail is native, the Cooper's hawk is a constant menace, but more especially in the winter, when a lack of cover exposes the birds to this hawk's attacks. In states where the grouse and the quail are not found, neither one of these birds of prey is so great a destroyer of man's friends as he is elsewhere. In Pennsylvania a bounty of five dollars is paid on a goshawk; and that reward, in that state, appears entirely justified. Elsewhere it might not be.

In keenness of shape, in blinding speed, in innate savagery, the goshawk is in a class with the gyrfalcons. When mature, his prevailing color is slaty gray. As the duck hawk is chiefly a bird of the marshes and of the coasts, the goshawk is generally a bird of the woods, though he visits the plains for sage grouse. No one admires the wild, eerie, yet continent flight of the ruffed grouse more than I do; but the goshawk can make a grouse in flight seem to be standing still. Occasionally a grouse will, by a daring maneuver, escape this grim harrier. I once saw a cock grouse, about to be captured, fly completely through a dense young hemlock, literally bulleting his way through, strewing the ground beneath and beyond the tree. Like the duck hawk, the goshawk is often fearless of man; or else his zest in capturing his prey is such that it is greater than his dread of the worst predator in the world—man himself.

The marsh hawk represents a type that keeps one guessing. I have often seen him kill quail. He is a great destroyer of rails and other marsh dwellers. Yet he is also a fine mouser. When the standing of such a bird of prey is doubtful, I believe it is wise to keep him under control. I don't always shoot a marsh hawk; but if I kill one, I know it isn't necessary for me to feel guilty.

"All right," you say, "the gyrfalcons are bad, but I'm not ever likely to see one. The rascals I am to look out for are four in number: the goshawk, the duck hawk, the sharp-shinned hawk, and the Cooper's hawk. But I'm a little uncertain about identification. Can't you give me a few hints as to how to tell these babies?"

I believe identification is helped if we consider where we are likely to meet a certain bird. The goshawk is essentially a Canadian species, and is with us a winter visitor; and the more severe the winter, the more goshawks will be seen. Like any other bird of prey, the goshawk is most likely to be seen *where his favorite prey is to be found.* In Pennsylvania he is unfortunately partial to grouse, and in that state I have found him chiefly in the hills and mountains which are the natural habitat of the grouse. In other states he will be found where his choicest prey lives.

While the sharp-shinned hawk looks and acts just like a small Cooper's hawk, the goshawk has a much greater spread of wing. To me, its action on the wing makes it resemble a falcon. In adults, the upper parts are bluish-gray; the under parts, white, traversed with slender bars of a slaty color. Of course, these birds are hardly going to let a man study their plumage for purposes of identification. I believe the hunter should study the size, proportions, and coloring of dead specimens of hawks; then, familiarizing himself in the field with their haunts, habits, and ways of flight, he will come at length to a mastery of their identity.

Although I have found the duck hawk nesting at an elevation of 6,000 feet in the Great Smoky Mountains, he is primarily a bird of the coast; and his greatest depredations are committed against shore birds and wild ducks, especially in the migrating season. I have most often seen him near the mouths of rivers, over old marshes, and along shores. He is at home where ducks are.

Both the Cooper's and the sharp-shinned hawks are frequenters of hedges,

creek-banks, and the edges of woods. One is not often encountered in the interior of a forest.

The duck hawk and the sharp-shinned hawk have a characteristic flight by which they can readily be identified: they beat the wings very fast. The Cooper's hawk is larger than either one of the two aforementioned; his flight is very rapid. Large immature females of this species are sometimes mistaken for the goshawk.

It appears to me that when we consider the sportsman's attitude toward hawks, we are to remember that he is first a man, then a hunter; and that he may wish to preserve certain fine species, even though they harry his game. This is because the real sportsman is almost invariably a lover of beauty—indeed, far more so than the race of emasculate bohemians who inhabit lounges and prate of beauty. A sportsman's love of beauty is natural, virile, and objective; and if he can't bring himself to kill a duck hawk because he admires the primeval strength and savagery of that winged warrior, I deeply respect his feeling.

I am now appending a list of the kites, hawks, and falcons tabulated in their relation to the sportsman. No doubt some shifting from one list to another might be made. I had in mind a grouping by way of suggestion rather than a dogmatic classification.

Wholly beneficial: rough-legged hawk, squirrel hawk, and the four kites.

Chiefly beneficial: broad-winged hawk, Harris' hawk, red-shouldered hawk, red-tailed hawk, short-tailed hawk, short-winged hawk, and Swainson's hawk.

Of doubtful standing: marsh hawk, prairie falcon, Richardson's pigeon hawk, and the sparrow hawk.

Distinctly harmful: Cooper's hawk, duck hawk, goshawk, the four gyrfalcons, pigeon hawk, and the sharp-shinned hawk.

MAN MADE THEM

No "Act of God" can be held responsible for at least 77,938 of the forest fires this country suffered in 1936. *Man made them!*

Not even counting the 141,432 fires on unpatrolled forest areas, man made almost ninety-two per cent of those 84,853 separate fires which raged on the eight arbitrary "protected" federal, state, and private forest fronts, according to statistics recently compiled by the United States Forest Service.

Add those figures: a grand total of 226,285 forest fires in the United States in 1936! They ravaged an area of over 43,000,000 wooded acres.

Of course, about 3,000,000 acres less were affected in 1936 than for the average of the five preceding years. But there were just 85,980 more fires reported than in 1935. This may be chalked up to an exceptionally bad year for forest fires, or it may be said that those who gather such statistics are annually becoming more efficient.

Nevertheless, up in smoke and down in ashes went $54,214,120—tangible value—in United States forest fires in 1936.

Count, too, this aftermath to the fiery holocaust: the loss of grazing land for 13,000,000 sheep, goats, cattle, horses, pigs; a protected haven for a myriad of game life—animals, birds, fish; a huge paradise for a vast portion of 70,000,000 campers, tourists, sportsmen, and health-seekers who enjoyed those forests in 1936.

Count, too, the millions of board feet of timber for houses, paper, and the legion of uses of wood-products that were whirled with flames to the winds; the great protection the forests offered as safeguard for watersheds providing nearly a third of the water-power resources of the country; the insurance the forests offered to hundreds of towns and cities of pure and abundant water-supply.

Consider the millions of dollars lost to the Federal Government in annual receipts on timber sales, grazing fees, and special land-uses and water-power; the thousands of miles of telephone lines, roads, trails obliterated, the bridges burned; the incalculable effect upon the lives of more than half a million men who, in 1935-36, in CCC programs, WPA and CWA projects, and otherwise bound up with those forest areas, were directly concerned.

Again that trio of Carelessness, Maliciousness and Negligence were chief malefactors in fire causes. Unextinguished matches and tobacco in some form ate up almost thirty per cent of the tremendous loss—just plain carelessness. Negligence—brush-burning, sparks from locomotives, improper logging practices—caused another twenty-one per cent. Maliciousness—unquestionable incendiarism—was to blame for a full twenty-seven per cent of the loss.

And these percentages apply only to the protected—scientifically patrolled—areas. Statistics are unavailable for the causes of the staggering number of fires on unprotected forestland.

A comparative handful, eight per cent, of the fires could be traced to unforeseen causes—lightning, or perhaps spontaneous combustion.

Over two-thirds of our forest area is protected. The fact that but a little over fourteen millions of the total dollar damage occurred in those sectors gives pretty cold evidence of its effectiveness.

The good woodsman appreciates the value of the forest for himself, his neighbors and community, his state. He knows the vital need for observing fire-prevention rules. They're based largely on this commonsense admonishment: Leave this place as you found it!

HISTORIC LUMBER TOWN

(*Continued from page* 71)

General Veazie, while perhaps the most aggressive of the early Bangor timber barons, was quite typical. He soon built or bought control in nineteen mills at Oldtown, thirteen more at Basin Mills, and still twenty more in his own town of Veazie, which town he got a friendly legislature to set aside for him. The General thought it would be nice, and efficient, to elect men from his own company payroll to fill the rather important offices of tax assessors. It was characteristic of the time and place.

As early as 1825 the legislature had granted a charter to the Penobscot Boom Company, formed to collect and segregate the great mass of logs of mixed ownership that floated down from the woods. General Veazie bought this boom franchise and ran things his own way, possibly to his own advantage, for there was a great to-do and much actual fighting over logs until other lumbermen got the State to appoint a boom commission to handle affairs.

But Veazie was not alone in his aggressiveness. There was Jefferson Sinclair. There were Moses Giddings and old Arad Thompson, individualists from 'way back, and the Pearsons, the Lumberts, the Bruces, the Stricklands and a score of others. Among them, and aided by just such aggressive and prehensile logging operators in New Brunswick, they brought about what to this day in Maine is referred to as the Aroostook War.

The "war" took its name from the then vaguely bounded country that is now Aroostook County. The international boundary was as yet undetermined, but not so were the intentions of the Maine and New Brunswick timber owners. Each group wanted *all* that fine straight pine, and each charged the other with trespass.

Maine land agents, sent to investigate, found many rafts of logs, allegedly cut in Maine, being floated down the Aroostook River into New Brunswick. They seized the rafts, only to have the Blue Nosers cut them loose under cover of darkness. There was considerable hullabaloo, during which oxen were seized or shot and stocks of wild hay burned. Among the loggers went on a heap of assault and battery.

Bangor lumbermen appealed to Washington. But Washington was too slow; all they did down there was to talk. But Maine acted. In 1839 it sent militia into the disputed territory to man Forts Kent and Fairfield, pointing old brass cannon in the general direction of Queen Victoria.

The artillery did not go into action. Sir John Harvey and Lord Ashburton came forward as peacemakers for Great Britain, and General Winfield Scott and Daniel Webster acted for the embattled Bangor lumbermen. The Webster-Ashburton Treaty of 1839, setting the present boundary, was the outcome.

With comparative quiet restored along the border, Bangor went into the years of its glory with its four hundred and ten saws. Williamsport, in Pennsylvania, would cut more lumber than Bangor. Saginaw and Muskegon, in Michigan, would cut more boards in a single month than Bangor did in a year; and, in time, a single sawdust plant would rise on the Columbia River in the Pacific Northwest that could cut twice as much lumber as all of Bangor's many small mills.

Yet the fame of the Penobscot city became so great that no less than ten other Bangors were founded—hopefully—on the trek south and west of the horde of loggers. A number of things contributed to this lustrous shining of Thoreau's star on the edge of night.

Bangor was the first city of size whose entire energies were given to making and shipping lumber and to the entertainment of the loggers who cut the trees. Then, too, it is from Bangor's canny and inventive men that stems so much that has been found good and practical throughout the years. And lastly there were the sure-footed lads who, spring after spring for a century, walked 200 and more miles on heaving logs straight down the middle of the Penobscot. These men made such a name for themselves, by their agility on a moving log and by their foolhardy courage anywhere, that west of Bangor a Penobscot man has since been known as a Bangor Tiger—quick of foot and ready for battle.

The idea of a sorting boom to handle mixed logs originated on the Penobscot and was later copied on the Hudson, the Saginaw, the Mississippi and other streams in the West. Bangor men invented the Bangor snubber, for regulating the speed of sleds of logs on steep hills; and they invented the log-branding ax, or hammer, for marking ownership. Joseph Peavey, blacksmith of Stillwater, near Bangor, invented the tool that bears his name—the greatest lumber invention since the saw.

The peak of lumber-making didn't come for Bangor until 1872, yet by then the city's importance had been fading for a full decade. By the time of the first battle of Bull Run, the bulk of Maine's white pine had gone through the saws, and Michigan, the next pine stronghold, was the lumber colossus. A heap of spruce would go down the Penobscot, just as some of it does in 1937—in tiny, four-foot sticks—but most of that spruce has gone into the chippers of pulpmills.

In a small neat park near Bangor's fine library is a group of statuary, the work of Sculptor Charles E. Tefft, named "The Last Drive." It depicts three calk-booted figures, two of them with peaveys in hand. It is the only thing to indicate that Bangor was once the greatest lumber city in the world.

PUBLIC REGULATION CHALLENGED

(*Continued from page* 82)

Referring to Mr. Hall's quotation of forest survey statistics, Mr. Silcox said they applied to 1934 since which time the 3,000 cord surplus of computed net growth over computed net drain for the southern naval stores area has become a computed deficit of 1,900,000 cords. Part of this deficit, he stated, is due to full projected requirements of new but known pulp mills and part to an increase in lumber production from 4,500,000,000 feet in 1934 to more than 7,000,000,000 in 1936. Furthermore, with the present location of southern pulp mills for deep sea transportation he held that figures of drain for the naval stores region as a whole cannot possibly apply to the Coastal Plains and cited as "a striking illustration of the fallacy of attempting to apply general figures to local situations" an area in South Carolina where there are no pulp mills and where figures show a surplus of timber.

"On the basis of these figures," he continued, "this local area seems to be in pretty good shape. Within it are two National Forest purchase units known as the Long Crane and the Enoree. The former embraces some 431,000 acres. Under proper management it could have yielded worthwhile, continuous returns in forest products, and continuous jobs for heads of many families. Under private ownership the usual exploitation was practiced, and the inevitable aftermaths are now plainly to be seen."

These aftermaths are described as 3,000 families, three-quarters of which are tenants, sharecroppers, or squatters, mostly of long standing, ninety-eight per cent of whose houses have leaky roofs, ninety-five per cent have no screens. Only one in ten has a toilet of any kind. Pellagra is widespread. Only thirty per cent of the children attend school. Living standards are low and undernourishment is all too common. This example, Mr. Silcox said, not only illustrates the fallacy of blindly applying general figures, but it also indicates the need for keeping local drain in balance with local growth. He asserted that the fact remains that in the South today "forest stocking is below normal and a part of the current growth must be retained annually if depleted forests are to be built up. . . . Even when the National Forest system functions as far as it can in this respect, it cannot—short of almost complete ownership of forest lands—conserve either our forest or our human resources generally.

"That's a major reason why, in my current annual report and elsewhere, I am emphasizing extension of public cooperation with private owners, and public regulation. I believe cooperation should be available to owners and operators who will deliver an adequate quid pro quo."

SURVEYORS OF THE SNOW

(*Continued from page* 68)

less than eighteen feet.

The storm brought a foot of new snow which made skiing poor, and it required three more days to complete the survey on the remaining Minarettes and lower Mammoth courses. Here we found lower density of the snow cover, a result of the new unsettled snow, which had added considerably to the depth, with but little increase of water content. Newly fallen snow will vary in water content, usually between eight and fifteen per cent, and increases rapidly in density as it settles and becomes compact. At this later stage, it will average between twenty-five and thirty-five per cent water. As warm weather approaches the density again increases, ranging between forty and fifty per cent. The snow is then ripe and runoff gets underway, with the density falling off as water leaches out of the lower depths of the cover.

Returning to the patrol station on the last day out, we were reminded of the winter's teeth, when we discovered on reaching a warm fire that our toes were frostbitten. The thermometer stood at an even twenty-seven degrees below zero.

With a clear sky and the grade in our favor, our return to the car was pleasant and uneventful. On reaching the highway we were met by a rotary plow, which had succeeded in cutting its way through the deep drifts during our absence. As Tex swung his team back toward the mountains and waved goodbye, we realized how much we would miss those dogs during the next few days. For now came the Rock Creek courses, where we must travel entirely by ski. Here, too, we would do our own cooking, one more reason for preferring the Mammoth courses.

Twelve miles of climbing brought us to the shelter cabin at an elevation of 9,500 feet. Buried to the eaves, it required considerable digging to reach the door. These cabins, located adjacent to the courses, are well supplied with food and fuel. Stocked early each fall with sufficient provisions for a long stay, in case of protracted storms forcing the men to remain several days, they contain everything from an extra pair of skis to a pack of playing cards.

Starting at daylight next morning, we ran the top course at an elevation of 10,000 feet and were back to the cabin by ten o'clock. An early lunch and then the long slide down the canyon, stopping to measure lower courses as we descended.

Eight days of hard work and glorious fun, all over except to reduce the notes and wire the results to Los Angeles. After recording there, they are forwarded to the State Division of Water Resources

at Sacramento, as a measure of cooperation, and thence redistributed to Irrigation districts, power companies and others who depend upon snowfall for their water supply. To the many projects that rely upon these data, they come either as good news or as a timely warning to prepare for flood or drought.

Many agencies over the nation carry on the work of snow surveying on a cooperative basis. Through this great network of survey courses each individual not only solves his own water problems, but also contributes to the vast store of hydrographic and meteorological data that is constantly being gathered.

And so as you sit by the radio and listen to its tale of terrific storms, blocked roads and zero temperature, we will be headed for the snowdrifts again, to play —and, get paid for it.

COCOA

(*Continued from page* 74)

canvas, walking in it and spreading the beans with their feet to dry. Young children and old women sit in the hot tropical sun and select the various grades of beans by hand; buyers and commissioners are busily choosing beans and tasting them. Like wine tasters, they eat a bean and then shake their head in refusal or reach into their pockets to pay for the purchase.

Chocolate crossed the Pyrenees into France in 1632 with Anne of Austria, the daughter of Phillip III of Spain, and wife of Louis XIII, King of France. Spanish monks made it known also by presenting it as a gift to their brethren in France. The various Spanish ambassadors contributed to making it fashionable, and at the time of the commencement of the Regency in 1715 it was more universally in use than coffee, because it was then taken as an agreeable nourishment while coffee was considered a drink of luxury and curiosity.

Primitive Indians on the Mosquito Coast still prepare the drink as did their precursors, the Aztec Princes. An excellent beverage is made by the Ulwa tribes in Honduras by roasting cocoa beans slightly and, with the outer segment removed, grinding them on a stone metate with toasted maize. Water and honey are agitated with a *molinillo* and the resultant drink, while a little gritty, is one of considerable character. If one desires to place the seeds of the *Scomphra* palm or the *Pejivalle* palm with the gruel and flavor it further with cinnamon, vanilla bean, and wild honey, it will be as close to an elixir as one can find in the primitive's world in the Americas.

Linnaeus named the cocoa, *cocoa theobroma*—the divine food. Some have endeavored to find the reason for this emphatic qualification, which is attributed variously to the learned man's excessive fondness for chocolate, to his desire to please his pastor, or to his gallantry, because a queen was first to introduce him to it.

WHO'S WHO

Among the Authors in This Issue

JAMES STEVENS (*Conservation in Calked Boots*) is a nationally known writer who at the moment is associated with the West Coast Lumbermen's Association, directing a campaign to encourage construction and ownership of small homes. Although he is best known as the author of *Paul Bunyan,* he has written four other books and several hundred stories and articles, most of them with lumbering as the theme.

ARCHIBALD RUTLEDGE (*A Look at the Hawks*), eminent author and poet, returns to the pages of AMERICAN FORESTS with an exceptionally thought provoking article on wildlife—this time, hawks. A native of South Carolina, educated in Charleston and at Union College, where he was graduated in 1904, Mr. Rutledge has for a good many years headed the English Department at Mercersburg, Pennsylvania. In addition to honors as an educator and writer, he is Poet Laureate of South Carolina.

Archibald Rutledge

HAZEL K. WHARTON (*Bobsledding in the Adirondacks*) is not only a writer of ability but a real authority on winter sports. During the Olympic winter games at Lake Placid, she served as assistant secretary of the Olympic Winter Games Committee. In addition she was a member of the first girls' team to race over the Lake Placid run. She lives in New York City.

GEORGE A. LEWIS (*Surveyors of the Snow*) is a hydrographer for the City of Los Angeles, but finds time to do considerable writing. He was born in a small Montana cow town and "punched cattle in Ketchum long before it became Sun Valley."

STEWART H. HOLBROOK (*Historic Lumber Towns*), like Archibald Rutledge, needs no introduction to the readers of AMERICAN FORESTS. An editor and writer, he is a native of Vermont, but now makes his home in Portland, Oregon. Macmillan will publish his history of logging in March.

WOLFGANG VON HAGEN (*Cocoa—The Divine Drink*) is a well known explorer and entomologist.

G. H. COLLINGWOOD (*Red Oak*) is Forester for The American Forestry Association.

SELECTED BOOKS ON FORESTRY AND RELATED FIELDS OF CONSERVATION

TREES

Manual of Trees of North America—Sargent	$ 5.00
Trees of Northern States and Canada—Hough	6.00
Our Trees—How to Know Them—Emerson & Weed	2.75
Pacific Coast Trees—McMinn and Maino	3.50
Trees of North America—The Conifers—Green	2.00
Trees of North America—The Broadleafs—Green	3.50
Northern Rocky Mountain Trees—Kirkwood	2.50
American Trees and Shrubs—Mathews	3.50
Tree Book—Rogers	5.00
Big Trees—Fry and White	2.00
Trees in Winter—Blakeslee and Jarvis	2.00
Tree Ancestors—Berry	3.00
Tree Flowers of Forest, Park, and Street—Rogers	7.50
Some American Trees—Werthner	5.00
The Redwoods of Coast and Sierra—Shirley	1.25
Identification of Trees and Shrubs—Makins	4.00
Evergreens—Hill	3.50
Book of Shrubs—Hottes	3.00
Trees of Yosemite—Tresidder	2.00

GENERAL FORESTRY

General Forestry—Brown	$ 3.25
An Outline of General Forestry—Illick	.75
Forest Education—Graves and Guise	2.50
Profession of Forestry—Read	1.50
Forest Law in America—Kinney	2.25

FOREST MANAGEMENT

Forest Management—Recknagel, et al	$ 3.50
Theory and Practice of Silviculture—Baker	5.00
Practice of Silviculture—Hawley	3.00
Manual of Forestry—Hawley and Hawes	3.50
Forest Management—Chapman	3.50
Management of American Forests—Mathews	5.00
Applied Silviculture in the U. S. A.—Westveld	4.00
Farm Forestry—Ferguson	2.00

MENSURATION AND VALUATION

Manual for Northern Woodsmen—Cary	$ 3.00
Forest Mensuration—Chapman and Demerritt	3.50
Forest Mensuration—Bruce and Schumacher	3.50
Forest Finance—Chapman	3.50

WOOD—ITS MANUFACTURE AND USE

American Lumber Industry—Brown	$ 3.00
Forest Products—Brown	4.00
Lumber, Its Manufacture and Distribution—Bryant	4.50
Logging Principles and Practices—Brown	3.50
Air Seasoning and Kiln Drying of Wood—Henderson	3.50
Identification of Economic Woods—Record	2.50
Mechanical Properties of Wood—Garrett	3.50
Identification of Timbers—Brown and Panshin	3.00
The Properties and Uses of Wood—Koehler	3.50

PLANTING OF TREES AND FORESTS

Seeding and Planting—Toumey and Korstian	$ 5.00
Cultivated Conifers—Bailey	7.50
The Modern Nursery—Laurie and Chadwick	5.00

FOREST PESTS

Principles of Forest Entomology—Graham	$ 3.50
Outline of Forest Pathology—Hubert	6.00
Insects and Diseases—Felt and Rankin	5.00
Diseases of Cultivated Trees and Plants—Massee	4.00
Forest Insects—Doane, et al	4.50

NATIONAL FORESTS

History of Forest Service—Smith	$ 3.00
Our National Forests—Boerker	2.50

NATIONAL PARKS

Book of the National Parks—Yard	$ 3.00
Grand Canyon Country—Tillotson and Taylor	2.00
The Great Smoky Mountains—Thornborough	2.00
Oh, Ranger—Albright	2.50
One Hundred Years in Yosemite—Russell	3.50
High Trails of Glacier National Park—Thompson	3.00

CAMPING AND RECREATION

Camp Cookery—Kephart	$ 2.50
Campers' Handbook—Wallace	2.00
Handbook for Rangers and Woodsmen—Taylor	3.00
The Real Log Cabin—Aldrich	3.00
Wisdom of the Woods—Beard	2.50

BIRDS, WILDLIFE, FISHING AND HUNTING

Handbook of Birds of North America—Chapman	$ 5.00
Adventures in Bird Protection—Pearson	3.50
Bobwhite Quail—Stoddard	6.00
Game Management—Leopold	5.00
Animals of North America—Anthony	1.98
Field Book of Wild Birds—Mathews	3.50
Animal Life in Yellowstone—Bailey	4.00
American Food and Game Fishes	5.00
American Fishes—Goode	6.00
Birds of America—Pearson, et al	3.95
Book of Birds—Grosvenor and Wetmore	5.00
The Reptiles of North America—Ditmars	6.75
Wild Animals—Beard	3.00

FLOWERS AND GARDENING

American Wild Flowers—Mathews	$ 3.50
Wild Flowers—House	3.95
Field Book of Western Wild Flowers—Armstrong	3.50
Flora of the Pacific States—Abrams	9.00
Rocky Mountain Flowers—Clements	3.50
Ferns of Northeastern United States—Wiley	1.00
Field Book of Common Ferns—Durand	2.50
The Mushroom Handbook—Krieger	3.50
Field Book of Illinois Wild Flowers	1.50
Spring Flowers of Minnesota—Rosendahl	1.00
Cyclopedia of Horticulture—Bailey	15.00

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How Plants Get Their Names—Bailey	2.25
Conservation—Havemeyer and Van Hise	5.50
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